Coming Full Circle: A Reciprocal-Engagement Model of Genetic Counseling Practice

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Abstract As genetic health care and genetic testing expand from primarily addressing conditions that are exclusively genetic in nature to common diseases with both genetic and environmental components, the scope of genetic counseling has grown. Identification and utilization of a normative model of practice defined by members of the profession is critical as genetic services become more commonplace in medical care. The purpose of this paper is to describe the results of a consensus conference convened to define a model of genetic counseling practice based on the guidance of educators and leaders in the profession. Twenty-three program directors or their representatives from 20 genetic counseling graduate programs in North America listened to presentations and participated in group discussions aimed at determining the elements of a model of practice, including tenets, goals, strategies, and behaviors for addressing patients' genetic concerns. Their discussion is summarized, training implications and research recommendations are presented, and a model of practice that extends their ideas is proposed.

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> "If I have a [model], I will have a method. I will know what to look for, what to do, and when to do it. I will be able to justify my interventions." (Janson 1998, p. 46)

Introduction

In the beginning years of the first genetic counselor training program at Sarah Lawrence College (the early 1970s), Joan Marks realized that the goal of genetic counseling, as it was then being practiced, was to provide medical information and genetic facts. She further noted that "emotional responses were studiously avoided" (p. 18) with the expectation that decisions should be made rationally and logically (Marks 1993). Concerned by the absence of counseling skills and agreeing with Sheldon Reed (1975) that genetic counseling was better conceptualized as a kind of *genetic social work*, Marks developed several counseling classes for the curriculum in order to introduce a psychosocial perspective. She believed that an effective genetic counseling process requires counselors to be self-aware and to recognize that patients exist within a family system, not in a vacuum. In the process of educating genetic counselors, she concluded that Carl Roger's *Client-Centered Counseling* (later called *Person-Centered Counseling*) was the most helpful theoretical approach for addressing psychosocial issues, in particular the *facilitative conditions* of empathy and unconditional positive regard and a stance of nondirectiveness (Marks 1993, 2003).

More than 30 years have passed since Marks conceptualized genetic counseling. Has her conceptualization withstood the test of time? Is the current model of genetic counseling practice a psychosocial model grounded in Client-Centered Counseling?

Genetic counseling practice has changed dramatically since Marks developed the first graduate program. Rapid increases in sophisticated tests and technologies, intense media attention, and expansion of the role of genetic health care to address common diseases with both genetic and environmental components are raising the demand for services and changing the scope of practice. Increased demand for services, along with recent developments such as cancer risk genetics, cardiovascular, and neurogenetics, are raising questions about how genetic counseling can be applied appropriately to different medical conditions (Wang *et al.* 2004; Weil 2003). The theoretical basis of genetic counseling is under scrutiny as the profession has grown and new challenges arise (Bowles Biesecker 2003; Duric *et al.* 2003; McCarthy Veach *et al.* 2002; Resta *et al.* 2006; Weil 2003).

However, nearly four decades after the first students were accepted into a graduate program designed specifically to train genetic counseling professionals, an empirically established, comprehensive model of practice has yet to be described. In 1996 the American Board of Genetic Counseling (ABCG) developed by consensus, practice-based competencies to provide a general framework for curriculum design and clinical practice for all genetic counseling training programs in North America. These competencies outline requisite minimal skill levels for entry level genetic counselors, but they are broadly written and not operationally defined.

A clearly defined model (or models) is warranted as it can be used to develop and execute research that evaluates genetic counseling service provision in the clinical setting according to distinct elements of practice that are well-described (Brazen 1992; Nix and Dillon 1986; Spielberger and Stenmark 1985). The results of such research can be used to enhance the quality, appropriateness, and effectiveness of genetic counseling services and can serve as a basis to effectively teach the skills needed to provide services. A preliminary step in this type of research involves identification of the distinct model of genetic counseling that should guide practice. We decided to look at views of the current model of practice by convening a 11/2 day consensus meeting of directors of genetic counseling graduate programs in North America. Following three presentations, the participants engaged in group discussions aimed at describing a model of genetic counseling practice.

Definitions and Functions of a Model of Practice

A model of practice sometimes is confused with either the *definition* of the service or with the *scope of practice*. We differentiate among these three terms as follows: *Definition* describes the services provided by professionals, in this case, genetic counseling. *Scope of practice* refers to the parameters of the service that is delivered—what professionals do. *Model of practice* refers to why and how the service is delivered to patients, as described by tenets, goals, strategies, and behaviors.

A model of practice constitutes a systematic method of problem solving that is applied to clinical situations and is based on scientific process (Brazen 1992; Spielberger and Stenmark 1985). A model provides: (1) a tentative theoretical framework for organizing interrelated theory, research, and practice (Spielberger and Stenmark 1985); (2) a common frame of reference for the systematic assessment of patients and the development of interventions (Nix and Dillon 1986); (3) a common frame for all practitioners in the clinical setting, thereby facilitating communication and agreement among staff regarding identified patient problems (Nix and Dillon 1986); and (4) consistency and continuity of care in the delivery of clinical services, thereby enhancing quality of care (Nix and Dillon 1986). A model of practice addresses several questions: (a) What is the theoretical framework for the practice? (b) What are the goals of practice? (c) How do we know when we have met those goals? (d) How do we evaluate the service? e) How do we improve services? and (f) How do we teach the practice?

Various authors have articulated the components of a model. Rieh and Ray (1974) describe four components: (1) *Tenet*—a principle, doctrine, or belief held in common by members of a group; (2) *Goal*—aim, purpose; content specified as aim for activity; (3) *Strategy*—a careful plan or method, especially for achieving an end; and (4) *Behavior*—Action/reaction; personal conduct. These components of a model taken from the wider clinical practice literature provided the framework for the tasks undertaken at the consensus conference. However, we recognize that in applying these discrete elements to the actual practice of genetic counseling there is some overlap among them.

Rationale for a Genetic Counseling Model of Practice

Several authors (e.g., Bowles Biesecker 2003; Kessler 2000; McCarthy Veach *et al.* 2003) argue that the genetic counseling profession has relied on other health care models and that it is time to develop an independent, precisely defined model and standards. Resta (2006) stresses that genetic counseling can only be defined by the practices of genetic counselors. Lewis (2002) argues that a model of genetic counseling practice is important because it would provide information regarding "...beliefs about genetic counseling held by counselors which lead to

differences in the actual practice of genetic counseling" (p. 195). A model provides a conceptual framework for interpreting clinical events, it shapes an individual's views of counselor and patient roles, and it helps individuals derive meaning from their experiences (Lewis 2002).

Historically, the genetic counseling profession has drawn upon models and methods from medicine, education, and mental health (McCarthy Veach *et al.* 2002). For instance, Carl Roger's *Client-Centered Counseling,* with its emphasis on *nondirectiveness,* was adopted from the mental health field. However, nondirectiveness has been challenged because it lacks definitional precision (Bartels *et al.* 1997; Bowles Biesecker 2003; McConkie Rosell and Sullivan 1999) and because of its failure to adequately describe genetic counseling practice (Kessler 2000; McCarthy Veach *et al.* 2002; Wang *et al.* 2004; Weil 2003). At the September, 2003 annual meeting of the National Society of Genetic Counselors, the relationship of nondirectiveness to genetic counseling was discussed in a public forum. There was general consensus that the profession needs to identify a more proactive model, determining what genetic counselors do and describing the model(s) of practice (Weil *et al.* 2006).

Kessler (1997) has described two models of genetic counseling – a teaching model adapted from academic medicine, and a counseling model adapted from mental health professions. The teaching model is based on a tenet that people seek genetic counseling to obtain information, and it has a corresponding goal of educating patients. The counseling model is based on a tenet of individual variation in the reasons that people seek genetic counseling. For instance, they may seek psychological support, validation, and/or alleviation of guilt. A corresponding goal of a counseling model is to increase patients' control over their situations. Currently the profession appears to be divided in their views about the validity of these two models (MacLeod *et al.* 2002). Moreover, there is some evidence suggesting that a teaching model is more prevalent than a counseling model (Biesecker and Peters 2001; Kessler 1997).

Lewis (2002) expresses concern about disparities in the genetic services received by members of culturally diverse groups, in particular, ethnic and racial minority groups. He identifies two major limitations of the models described by Kessler (1997). Both models fail to explicitly address issues of culture, although Lewis believes that the counseling model may best support multicultural approaches to genetic counseling; and research regarding the prevalence and effectiveness of the counseling and teaching models is limited. Lewis advocates the use of a qualitative approach to elucidate the current genetic counseling model of practice and how it addresses, or fails to address, issues of culture.

Research Investigations of the Components of Clinical Practice

A growing number of studies involve investigations of various components of genetic counseling practice. Although none of these studies describe a model of practice, their findings do suggest possible elements.

Counselor Tenets

Michie *et al.* (1997) assessed the extent to which 131 genetic counselors adhered to nondirectiveness, a principle historically espoused as a basic genetic counseling tenet. Their participants reported using at least two directive statements per session, and being more directive with patients whom they viewed as *more concerned* and with those of lower socioeconomic status. Bartels *et al.* (1997) similarly found that although 96% of their 383 genetic counselor respondents viewed nondirectiveness as important, close to three-fourths stated that they are sometimes directive, especially in guiding patients about how to obtain information relevant to making decisions about testing. Wang *et al.* (2004) in their review of research on genetic counseling services similarly identify nondirectiveness as a presumed tenet and question its meaning and adequacy. Despite these types of challenges to nondirectiveness, alternative tenets have not been articulated.

Genetic Counseling Goals

Evidence suggestive of genetic counseling goals is provided by Matloff (1994) who surveyed 122 genetic counselors and asked them to identify specific topics they included in prenatal genetic counseling sessions and the factors that affect their decisions to include or omit certain content. *Patient education/informed decision-making* was listed as the primary factor affecting counselors' selection of content, and it could be concluded that it comprises a significant goal. However, despite its prevalence, half of her respondents did not inform patients of all possible decision-making options, and Matloff found significant variability in the overall content of prenatal sessions.

Chapple *et al.* (1995) interviewed 30 patients who received a consultation for various conditions with one geneticist in England. They asked patients to describe their understanding of genetic disease, and they interviewed the geneticist about his goals for each session. Based on interviewee responses, the authors concluded that typical service provider goals were: learning patients' individual definitions of their situations in order to address their confusion and guilt, encouraging patient feedback to ensure their understanding, and providing sufficient consultation time to explore lay beliefs and their effects on patient

psychosocial functioning. These goals seem appropriate since the researchers also found that patients varied in their understanding of the causes of genetic conditions.

Bernhardt et al. (2000) interviewed 16 genetic counselors and 19 patients who identified eight genetic counseling goals: increase patient knowledge and understanding, assess risk, facilitate decision-making, provide support, provide anticipatory guidance, alleviate guilt, empower patients to feel in control, and make needed referrals. Patients perceived the benefits of genetic counseling as: provision of information and acquisition of knowledge, immediate psychosocial support, long-term psychosocial support, anticipatory guidance, facilitation of family communication, and assistance with decision-making. Both counselors and patients considered the nature of the interpersonal interaction of utmost importance.

Lobb et al. (2001) surveyed 29 Australian genetic counselors and clinical geneticists working in cancer genetics. Their participants identified five counseling goals: assessing patients' needs and concerns, providing information on genes and chromosomes, conducting an individual risk assessment in the context of supportive interaction, discussing the pros and cons of genetic testing, and developing a surveillance plan.

Skirton (2001) conducted a longitudinal interview study of 43 families who received genetic counseling in the UK. She was interested in assessing patient needs and expectations and relevant genetic counseling outcomes. She found that client motivations for genetic counseling included a need for certainty and that a major counseling outcome was patients' adaptation to their genetic conditions. Factors that appeared to facilitate outcome included a quality relationship with the genetics staff and the patients' ability to integrate lay and scientific explanations. These findings imply that genetic counseling goals might include provision of information and provision of a supportive relationship.

Davey et al. (2005) administered pre–post surveys to 122 patients who received genetic counseling in Australia to assess their expectations, satisfaction with services, and psychological adjustment. Based on survey results, the researchers concluded that two broad genetic counselor goals are providing genetic information and providing psychological support (e.g., assisting patients to identify and express their psychological needs). They also identified patient psychological adjustment as an important outcome goal.

The findings of these studies suggest that there are at least two common genetic counseling goals: information provision and psychological support. Wang et al. (2004) reviewed research on genetic services (including genetic counseling) and have concluded that there are three broad goals of genetic counseling: educating and informing patients about genetic conditions, providing psychological and social support to help them cope, and facilitating

informed decision-making. Some of the findings (e.g., Davey et al. 2005; Skirton 2001) provide evidence that both genetic counselor provision of information and support play a role in genetic counseling outcomes.

Counselor Strategies

Hallowell et al. (1997) interviewed 46 women who received genetic counseling for familial breast and/or ovarian cancer and analyzed transcripts of their sessions. These sessions were conducted by one of two genetic counselors. The focus of this study was on presentation of risk information. The researchers found the following four counselor strategies in every session: determining the patient's agenda, drawing a family tree, estimating patient risk, and discussing appropriate risk management. Strategies that were more variable in their occurrence included discussion of: prophylactic surgery, HRT, genetic research, cancer research, and epidemiology of cancer. There was also a great deal of variability in the types of qualitative and quantitative risk estimate methods used by the counselors across sessions.

Benkendorf et al. (2001) analyzed audiotapes of 43 reproductive genetic counseling sessions and found that genetic counselors engaged in three common activities: initiating transitions to the next agenda topic, providing medical information or instructions to patients, and facilitating patient decision-making.

Lobb et al. (2005) analyzed genetic counseling session transcripts for 151 women from the United Kingdom (UK) who were at high risk of familial breast cancer. The women received genetic counseling from one of five professionals (two genetic counselors, two geneticists, one oncologist with training in hereditary cancer). As part of this study, the researchers identified two major types of in-session strategies: providing information, and communication. Communication consisted of facilitating understanding, facilitating patient active involvement, facilitating partnership building, and eliciting patient emotional concerns. They found a fair amount of consistency among the professionals in their provision of information (both topics covered and percentage of time spent on those topics), but there was far more variability in their communication/facilitation strategies.

These studies suggest common counselor strategies, but further specification of the behaviors that comprise each strategy is needed. Lobb et al. (2005) reported that they assessed individual behaviors, but their published descriptions are more indicative of strategies. Furthermore, they assessed the genetic counseling behaviors of only 5 professionals.

Counselor Behaviors

McCarthy Veach et al. (1999) interviewed 28 former genetic counseling patients about their genetic counseling experi-

ence, including perceptions of the genetic counselor's behaviors and their helpfulness. A vast majority perceived their counselor as listening adequately and answering their questions. Over half perceived their counselor as supportive, although they varied in how they defined support (e.g., answering questions, taking time with them, understanding, providing encouragement, and making a referral to a support group). Participants rated the majority of counselor behaviors as helpful. The authors concluded that: genetic counselors primarily listen and answer questions; patients desire and are provided with information; and patients differ in the amount and type support they wish to receive.

MacLeod et al. (2002) interviewed 17 adults from 12 families in the UK to assess their perceptions of the effectiveness of genetic counseling they had recently received. Participants identified the provision of clear information as particularly helpful. They also considered offers by the geneticist to take on the problem (e.g., offering to contact other doctors to convey information and to validate the hereditary nature of their condition) to be helpful. Finally, they considered the geneticist's offers to extend help to other family members to be beneficial.

Duric et al. (2003) analyzed transcripts from breast cancer genetic counseling sessions for 111 women in Australia. The women were seen by one of seven professionals (five geneticists, two genetic counselors). Part of the researchers' investigation involved assessing empathy responses to patient emotional cues. They found that 64 transcripts contained at least one patient emotional cue, and that cues indicating more intense patient affect were more likely to be responded to empathically by the genetics professionals. Use of empathy was related to increased emotional cues by patients and to a modest reduction in their post-counseling depressive symptoms. The authors concluded that genetic counselors should encourage and respond to patient expression of emotional needs.

Ellington et al. (2005, 2006) analyzed communication patterns of three genetic counselors during 167 pre-test BRCA1 genetic counseling sessions and concluded that the sessions were primarily educational, focused on biomedical information. They identified four counselor-client communication patterns: client-focused psychosocial, biomedical question and answer, counselor-driven psychosocial, and client-focused biomedical. They further concluded that all three genetic counselors, although differing stylistically, used a combination of education and counseling behaviors. Similar to Lobb et al. (2005) they speculated that genetic counselors may cover very similar information, but they differ substantially in how they cover it.

Roter et al. (2006) assessed the verbal behaviors of 152 genetic counselors who participated in simulated genetic counseling sessions with one of six patient actors. They identified four counselor communication patterns, two

characterized as teaching and two as counseling. The behaviors associated with each pattern varied with respect to amount of clinical information provided, psychosocial emphases, addressing of patient emotions, and counselor verbal dominance.

McCarthy Veach et al.'s findings (1999), while suggestive of certain types of genetic counselor behaviors, are based solely on retrospective patient reports. An obvious limitation of the MacLeod et al. (2002), Duric et al. (2003), and Ellington et al. (2005, 2006) research findings is that they are based on observations of only a few genetics professionals. Roter et al.'s (2006) findings are derived from simulated sessions with patient actors. Furthermore, Roter et al. claimed to have identified "models of practice," but their findings are limited to observed counselor behaviors and strategies. Tenets and goals were not addressed.

Critique

Research on the processes and outcomes of genetic counseling is in its infancy. Investigators have studied some but not all of the elements of a practice model within their studies, and a majority of their findings are based on self-report or on small numbers of genetic counselors and/ or patients. Generalizability of findings is further limited by selection bias (e.g., patients are self-selected populations, they often are Caucasian and from higher socioeconomic levels), and by a failure to clearly operationalize key variables such as genetic counseling goals (Wang et al. 2004). The extant findings do suggest that goals may be fairly universal, including educating patients, providing psychological support, and promoting informed decision making, and that strategies and behaviors appear generally compatible with these goals. Findings further suggest that there may be greater variability among genetic counselors in their behaviors and strategies than in their tenets and goals. At present, however, the findings offer limited guidance regarding a comprehensive and specific model or models of practice based on the guidance of educators and leaders in the genetic counseling profession.

Consensus Conference Description

Participants

North American genetic counseling program directors were invited to attend the consensus conference. Program directors comprise an ideal working group because they are educators who develop curriculum and train genetic counselors. In addition, many assisted in the development of the ABGC clinical competencies, have demonstrated leadership in NSGC special interest groups, have authored

major practice-based publications in genetic counseling, and some provide direct clinical services. Program directors from all of the genetic counseling graduate programs in North America accredited by the ABGC (N=30) were contacted via email and invited to attend a 1 1/2 day consensus conference. They were told that the conference objective was to identify the model(s) of practice for genetic counseling. Twenty-three program directors or their representatives from 20 programs attended.

Objectives

Participants were told that the conference objectives were: (1) to make explicit the clinical practice model that *is* and not the model that *could or should* be; and (2) to describe the *current* model of practice and *not to develop* a new model. Specific objectives included: describing tenets (assumptions, principles), goals, strategies, and behaviors for addressing patients' genetic concerns; identifying variations in the model due to genetic counseling specialty/patient condition; and identifying variations due to genetic counseling patient cultural background.

Format

We used a consensus process spanning 2 days (10 1/2 h) in November 2005 in which methods parallel to those used to define the ABGC practice-based competencies were employed (i.e., presentations by experts and group discussions of stimulus questions). There were three presenters: (1) Jon Weil, author of a textbook on genetic counseling, former program director, and author of articles on genetic counseling tenets; (2) Robert Resta, former editor of the *Journal of Genetic Counseling* and author of an historical overview of definitions of genetic counseling (Resta 2006); and (3) Michelle Fox, a seasoned genetic counselor practitioner and one of the few individuals whose work spans all genetic counseling practice specialties. Each presenter spoke for 45 min and served as co-facilitator of a small discussion group. Conference participants were asked to describe the model of genetic counseling practice by identifying tenets, goals, strategies, and behaviors that would operationalize genetic counselor competencies.

On day 1, each group discussed a series of stimulus questions contained in the Appendix. Several of these questions prompted participants to consider the model of practice that they teach. Discussions were audio-recorded and the co-facilitators (the present authors, and the presenters) took detailed notes. The following morning, the same discussion groups worked on identifying the model of genetic counseling practice, identifying tenets, goals, strategies, and behaviors using a grid that contained each component, its definition, and an example. Due to

time constraints, participants were asked to limit the number of behaviors they identified for a given strategy to a maximum of five. They also were told that they could select any component of the model as their starting point (i.e., identifying a tenet, a goal, a strategy, or a behavior). After completion of the grid activity, each group summarized its model components for the whole group, followed by large group discourse.

Group Process

The participants approached their task with enthusiasm, interest, and spirited debate. Some commented that it was challenging to place their ideas within the framework of a model and its concomitant terminology as they had never before been required to articulate a model of practice in this way. Periodically co-facilitators had to re-direct discussion to the topic of what the current model of practice "is" and not what the model "ought to be." One of the easier tasks for participants involved discussion of "What is success in genetic counseling?" and "What is failure in genetic counseling?" They provided rapid and multiple responses to these questions and their ideas are indicative of genetic counseling goals (i.e., objectives, aims, purposes). The most difficult tasks appeared to be identifying tenets (assumptions, beliefs, principles, convictions) and genetic counselor strategies (plans, approaches, methods). Genetic counselor behaviors (specific actions), although not as difficult to identify broadly, also posed a challenge when participants were asked to operationalize them as discrete actions (e.g., "Take a pedigree" is not a single behavior, rather it consists of a series of behaviors—ask questions, clarify patient responses, etc.). Participants expressed the most confusion when distinguishing between components of the model that are *conceptually closest*, that is, strategies and goals, goals and tenets, and strategies and behaviors.

Identifying Model Components

The participants' grids and co-facilitator notes were collected and later transcribed. We analyzed the transcriptions, categorizing comments into tenets, goals, strategies, and behaviors. We also extracted key themes from stimulus questions to further elaborate the model of practice. The components on which participants spent a majority of their time are tenets and goals, while time constraints resulted in considerably less attention to the identification of strategies and behaviors. Because a majority of the content generated during the conference concerns tenets and goals, they are the focus of this paper. The participants did articulate a few strategies and behaviors, and although they are too preliminary to report in depth, they are included in order to more fully elaborate the

model summary. Tenets and goals and prior research that supports them are presented in Table I. Table II contains strategies and behaviors generated by the participants.

Each group identified from three to seven tenets. After eliminating redundancy, a total of five tenets were extracted from the groups' responses. Tenets are foundational beliefs about the profession and its responsibilities to patients. As shown in Table I, these tenets are: (1) Genetic information is key; (2) Relationship is integral to genetic counseling; (3) Patient autonomy must be supported; (4) Patients are resilient; and (5) Patient emotions make a difference. For each tenet, 3–4 goals concerning both genetic counseling processes and outcomes were identified. Process goals refer to the conditions that must be present during genetic counseling sessions in order to achieve desired genetic counseling

outcomes, and they are primarily the genetic counselor's responsibility to accomplish (McCarthy Veach et al. 2003). Outcome goals refer to the results of genetic counseling, and genetic counselors and patients are mutually responsible for establishing and accomplishing specific outcome goals (McCarthy Veach et al. 2003).

Tenet: Genetic Information is Key

This tenet recognizes that knowledge is power—it is emotionally, cognitively, and behaviorally powerful. Participants commented that they believe *being informed is better than being uninformed*. This tenet presumes that patients desire genetic information when they seek genetic counseling services. In genetic counseling, information focuses on

Table I Genetic Counseling Model of Practice—Postulated Tenets, Goals, and Research Support

Goals	Prior Research[a]
Tenet: genetic information is key	
Counselor knows what information to impart	Chapple et al. (1995); Hallowell et al. (1997); Lobb et al. (2001, 2005)
Counselor presents genetic information	Benkendorf et al. (2001); Davey et al. (2005); Ellington et al. (2005, 2006); Hallowell et al. 1997; Lobb et al. (2001, 2005); MacLeod et al. (2002); Matloff (1994); Roter et al. (2006)
Patient is informed	Bernhardt et al. (2000); Chapple et al. 1995; Lobb et al. (2001, 2005); MacLeod et al. (2002); Matloff (1994); Skirton (2001)
Patient gains new perspectives	All study results imply new perspectives
Tenet: relationship is integral to genetic counseling	
Genetic counselor and patient establish a bond	Bernhardt et al. (2000); Ellington et al. (2005, 2006); Lobb et al. (2001, 2005; McCarthy Veach et al. (1999); Roter et al. (2006); Skirton (2001)
Good genetic counselor–patient communication	McCarthy Veach et al. (1999); Roter et al. (2006)
Co characteristics positively influence process	Ellington et al. (2005, 2006); Roter et al. (2006)
Tenet: patient autonomy must be supported	
Establish working contract	Lobb et al. 2001, 2005
Integrate familial and cultural context into counseling relationship and decisions	MacLeod et al. (2002); Roter et al. (2006)
Patient feels empowered and more in control	Bernhardt et al. (2000); Davey et al. (2005); McCarthy Veach et al. (1999)
Facilitate collaborative decisions	Bartels et al. (1997); Benkendorf et al. (2001); Bernhardt et al. (2000); Lobb et al. (2001, 2005; Michie et al. (1997)
Tenet: patients are resilient	
Recognize patient strengths	Bernhardt et al. (2000)
Adaptation	Davey et al. (2005); Skirton (2001)
Empowerment	Bernhardt et al. (2000)
Tenet: patient emotions make a difference	
Counselor and patient know patient concerns	Chapple et al. 1995; Davey et al. (2005); Duric et al. (2003); Ellington et al. (2005, 2006); Lobb et al. (2001, 2005; Skirton (2001)
Patient's family dynamics are understood by counselor and patient	Bernhardt et al. (2000)
Patient self-esteem is maintained/increased	Bernhardt et al. (2000); Davey et al. (2005)

[a] Prior research studies whose findings support each goal and its overarching tenet

Table II Genetic Counseling Model of Practice - Preliminary Strategies and Behaviors

Tenet: genetic information is key

Goal	Strategy	Behavior
Patient is informed	Assess patient educational level	Open and closed questions to gather hx and to determine what patient understands.
	Assess patient decision-making style	Open and closed questions
Counselor knows what information to impart	Assess medical literacy	Ask questions
	Listen for inaccuracy	Open and closed questions to determine patient understanding; repeat or rephrase information
	Two-way communication	
Counselor presents genetic information	Use visual aids	Explain materials; use language patient can understand
Patient gains new perspectives	Assess patient understanding	Open and closed questions to learn what the information means to the patient

Tenet: relationship is integral to genetic counseling

Goal	Strategy	Behavior
Counselor and patient establish a bond	Active listening	Sit quietly; reflect patient thoughts and feelings; summarize patient statements; rephrase; use similar body language
Good counselor–patient communication		
Counselor characteristics positively influence process	Behave ethically	
	Recognize impact on session	
	Maintain objectivity	
	Maintain boundaries	
	Self-care	
	Peer supervision	Self-disclose; request feedback; provide feedback

Tenet: patient autonomy must be supported

Goal	Strategy	Behavior
Establish working contract	Assess patient expectations	Ask questions
	Provide informed consent	Describe process
	Establish realistic agenda	State goals
Integrate familial and cultural context into counseling relationship and decisions	Recognize multiple strategies	
	Maintain counseling flexibility	
Patient feels empowered and more in control	Discuss what patient wants to discuss	
	Create safe environment	
	Respect patient decision/viewpoint	
	Enable informed actions and decisions	
Facilitate collaborative decisions	Ask about options	Reflect patient thoughts and feelings re: options

Tenet: patients are resilient

Goal	Strategy	Behavior
Recognize patient strengths	Identify patient strengths	Ask questions about patient coping skills
	Make connections	
	Anticipatory guidance	
	Instill hope	
Adaptation	Assimilation	
	Accommodation	
Empowerment	Create safe environment	

Table II (continued)

Tenet: genetic information is key

Goal	Strategy	Behavior
	Maintain/enhance patient self-esteem	
	Identify possible outcomes	

Tenet: patient emotions make a difference		
Goal	Strategy	Behavior
Counselor and patient know pt concerns	Recognize ethical dilemmas in patient's life	
	Anticipate patient needs	
Patient family dynamics are understood by counselor and patient.		
Patient self-esteem is maintained or increased	Define patient support network	
	Identify resources	
	Convey empathy	

Due to time constraints, participants were unable to fully identify strategies and behaviors. Therefore, strategies and behaviors listed in this table are preliminary.

biomedical content, in particular, perceived or known genetic contributions to disease. Participants regarded the provision and discussion of genetic information as one of the most unique aspects of genetic counseling.

Goals

Two process goals and two outcome goals that correspond to the genetic information tenet were identified. The process goals for this tenet are: (1) The genetic counselor knows what genetic information is relevant to impart to a given patient; and (2) The genetic counselor presents the genetic information in a way that the patient can understand. The outcome goals are: (1) The patient is informed; and (2) The patient gains new perspectives.

Participants identified the importance of accurately assessing patient history, background, risk, and needs in order to determine how best to present relevant information that is comprehensible to the patient. Presentation and discussion of relevant information allows patients to gain improved understanding of perceived or known genetic contributions to their condition, develop a new or different perspective about their condition, realize what they can and cannot control, and adapt to the information they receive.

Tenet: Relationship is Integral to Genetic Counseling

This tenet reflects a belief that a patient's genetic concerns are best addressed when the counselor and patient form a strong alliance to address psychosocial, medical, and educational issues fundamental to these concerns. This tenet further reflects a belief that people need connection, especially in times of distress. Genetic counseling therefore is a relationally based helping activity whose outcomes are only as good as the connection established between the counselor and patient. In other words, the quality of the genetic counselor–patient relationship is as important to genetic counseling outcomes as the genetic information provided.

Goals

Three broad process goals were identified for this relationship tenet: (1) the genetic counselor and patient establish a strong working relationship; (2) the genetic counselor and patient engage in good communication with each other; and (3) the counselor knows how to intervene in order to build rapport and foster communication. These goals reflect the importance of connection and communication between the counselor and patient and the pivotal role played by the genetic counselor in this regard. Genetic counselors should help patients feel supported and cared for, they should foster a trusting and collaborative relationship, and they should strive to understand patient values, culture, and perspectives. Furthermore, genetic counselors are *reflective practitioners*, who are self-aware, ethical, objective to the extent possible, and open and responsive to feedback.

Tenet: Patient Autonomy Must Be Supported

This tenet espouses a belief that *the patient knows best* and therefore should be self-directed regarding genetic counseling decisions. The individual and her or his socio-cultural and familial context (beliefs, practices) are valued and respected as important aspects of autonomous decision-making.

Goals

Two process goals and two outcome goals correspond to the tenet of supporting patient autonomy. Process goals are as follows: (1) the genetic counselor and patient establish a working contract that includes informed consent and mutual goal-setting; and (2) the genetic counselor understands the patient's familial and cultural context and works within this context to engage in decision-making with the patient. The genetic counselor must be flexible and apply multiple strategies with different patients. Outcome goals include: (1) the genetic counselor and patient make decisions in a collaborative fashion – there is a *give and take* between counselor and patient; and (2) the patient is empowered to feel more in control of her or his situation. Empowerment occurs when individuals maximize their ability to function and develop their inner strength (Itzhaky *et al.* 2004). This goal is achieved in part by discussing what patients wish to discuss, respecting patients' points of view, and enabling informed actions and decisions. These goals reflect a theme of nondirectiveness with respect to the outcomes of patient decisions.

Tenet: Patients Are Resilient

This tenet recognizes that most people have sufficient strength and personal capabilities to deal in some way with the *hand that they are dealt*. Given appropriate information and adequate psychological support, they can draw on their capacity to learn from and adapt to difficult and painful situations. Resilience carries patients through times of crisis and enables them to make difficult decisions. Genetic counselors presume that the *typical* patient is hardy enough to participate as an equal in the genetic counseling process.

Goals

Three outcome goals correspond to the tenet of patient resilience. They involve assisting patients to recognize and draw upon their strengths in the face of genetic information, genetic risk, and decision-making: (1) the genetic counselor and patient recognize the patient's strengths; (2) the patient attempts to adapt to her/his situation; and (3) the patient feels empowered. Genetic counselors encourage patients to identify and draw upon coping strategies that have helped them successfully resolve prior life crises, and they help patients to achieve a sense of acceptance and peace with their situation.

Tenet: Patient Emotions Make a Difference

This tenet acknowledges the relevance of patient emotions within genetic counseling. A multitude of emotions may be precipitated during and after genetic counseling; many are quite intense, often to the point of being overwhelming. As one participant said, "You give patients concerns and then alleviate them." Patients' emotions interact with all facets of genetic counseling processes and outcomes, for instance, affecting their desire for information, their comprehension of information, the impact of information on their decisions, their willingness and ability to connect with the counselor, their desire for autonomy, and their perceived resilience.

Goals

There are two process goals and two outcome goals associated with the patient emotions tenet. Process goals are as follows: (1) the genetic counselor and patient know the patient's concerns that are triggering her or his affect; and (2) the genetic counselor and patient both understand the patient's family dynamics and psychosocial context. The outcome goals are: (1) patient emotions may be expressed in the session; and (2) patients maintain their self-esteem and, in some cases, their self-esteem is enhanced. These goals are multifaceted and involve recognizing and managing patient emotions and patient ethical dilemmas; understanding the impact of past history and family dynamics on patients and their situations; helping patients understand how their emotions affect their reactions to genetic information and their decision-making processes; and promoting patient emotional well-being by providing support, validation, and assistance with coping.

Strategies and Behaviors

Table II contains strategies and behaviors that correspond to the five tenets and goals. Due to time constraints, participants were not able to generate strategies and behaviors for every goal. These strategies and behaviors help to illustrate the model, although clearly more work is necessary to develop these components. Consider, for instance, the tenet *Relationship is Integral to Genetic Counseling*. For this tenet participants identified a goal of *Genetic counselor and patient establish a bond* and a corresponding strategy of *active listening*. They specified a few, but certainly not all behaviors that comprise active listening. A more elaborated list of counselor behaviors indicative of active listening might include: *Non-Verbal Behaviors:* sit quietly and at a distance that is comfortable for the patient, use body language similar to that of the patient, establish eye contact that is comfortable for the patient, use occasional head nods to indicate your understanding; and *Verbal Behaviors*: reflect in your own words the patient's thoughts and feelings, summarize the major points in the patient's statements, and to the extent possible, allow the patient to finish speaking without interrupting, use expressive hand

gestures, lean in towards the patient when s/he is expressing intense emotion (McCarthy Veach *et al.* 2003).

Unique Aspects of the Model of Practice

Participants were asked to identity what they regarded as unique aspects of the genetic counseling model of practice. Common responses included: dealing with genetic uncertainty; having a risk focus; working with patients/families to integrate their backgrounds with genetic information; and beginning with, rather than ending with, a diagnosis.

Discussion

To return to our opening question, "Does Marks' conceptualization still hold true today?" We believe that it does because it grounds genetic counselor training on a firm foundation of psychosocial processes as a way to prepare patients to deal with genetic information and its impact on their lives. In the intervening years since Marks' presented her conceptualization, a collaborative model that puts patients at the core of determining their medical and psychosocial futures has been established. The notion of total nondirectiveness has been discredited, but positive regard, empathy, trust in patients' ability to participate in the resolution of their problems, and centrality of the counselor–patient relationship continue to characterize the model of practice. The tenets and goals identified by consensus participants reflect the concepts of respect for patient autonomy, and recognition of patient resiliency. It should be noted that participants acknowledged that there are individual differences and cultural variations in patients' abilities, capacities, and emotional expression which require genetic counselors to modify their approaches accordingly. Nevertheless, their tenets reflect an assumption that all patients possess some degree of autonomy and resiliency and that their affective reactions are pertinent to genetic counseling processes and outcomes.

Conference participants identified five tenets that address fundamental beliefs about genetic information and about cognitive, affective, behavioral, and social/cultural dimensions of genetic counseling. The tenets suggest that genetic counselors contextualize *scientific facts* within the intrapersonal, interpersonal, and cultural identities of a given patient and her or his family; and they take into consideration their patients' intrapersonal and interpersonal concerns as well as their own personal characteristics (values, biases, ethics, etc.) to accomplish desired outcomes in genetic counseling.

The components of the model articulated by participants are consistent with the NSGC Code of Ethics (2006), in particular the Definitions and Functions of a Mode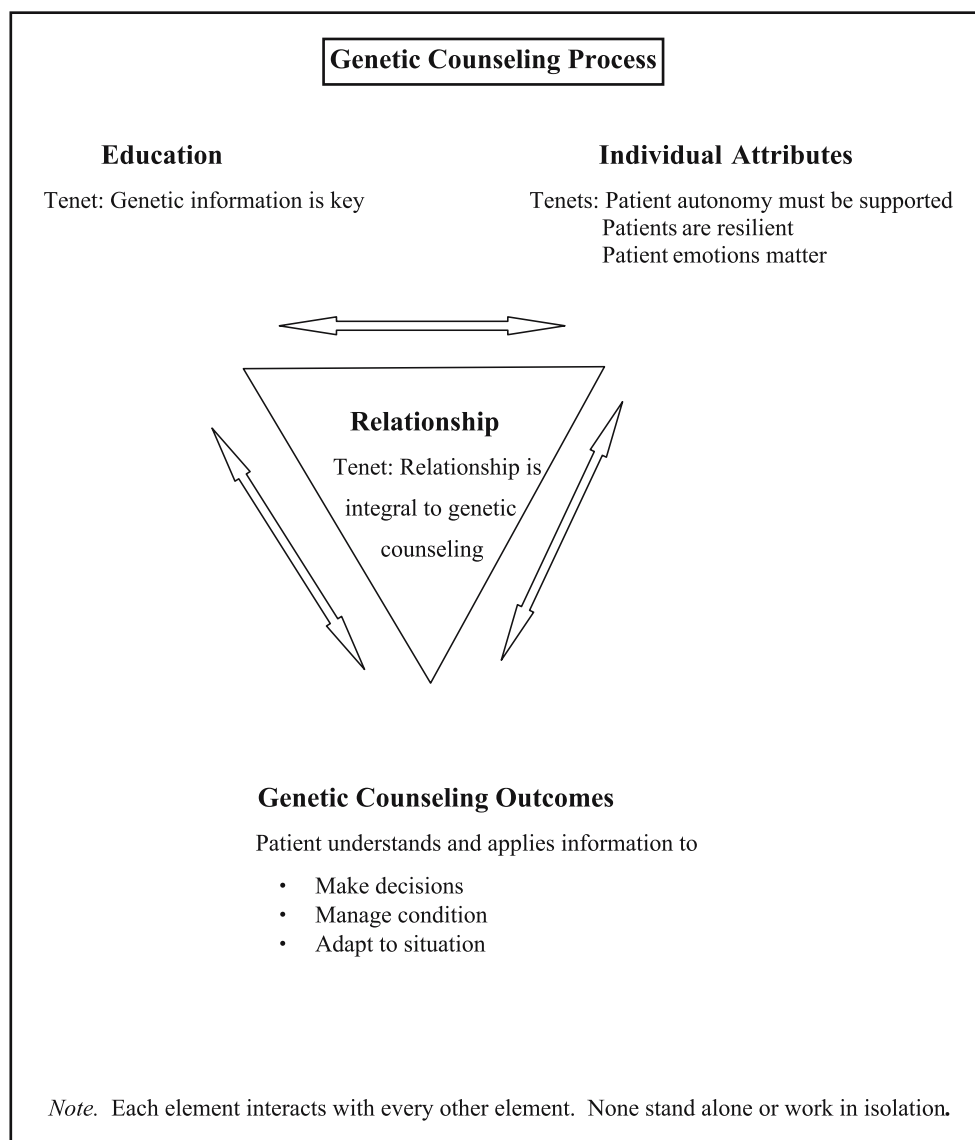l of Practice section and the Rationale for a Genetic Counseling Model of Practice section: "Genetic counselors value competence, integrity, dignity, and self-respect in themselves as well as in each other"; and "The counselor–client relationship is based on values of care and respect for the client's autonomy, individuality, welfare, and freedom. The primary concern of genetic counselors is the interests of their clients." These statements are particularly congruent with the autonomy, relationship, and emotion tenets. The goals identified by participants are consistent with those of Walker (1998) who discusses six outcome goals in her analysis of a genetic counseling definition from the American Society of Human Genetics (ASHG 1975): (1) comprehend medical facts, including diagnosis; (2) understand the way heredity contributes to the condition and recurrence risks of specified relatives; (3) understand alternatives for dealing with recurrence risk; (4) choose a course of action that seems appropriate to the client in light of her or his risk, family goals, and personal ethics and religious standards; (5) act on the chosen course of action; and (6) make the best possible adjustment to the disorder or the risk of the disorder in an affected family member. The goals are similar to those articulated by prior theorists and researchers (e.g., Biesecker and Peters 2001; Davey *et al.* 2005), and they are consistent with the ABGC minimal competencies for entry level practitioners. Finally the participant-derived components are consistent with prior research. As shown in Table I, every tenet and goal is reflected in the findings of these studies.

Caveats/Limitations

The model identified by the participants constitutes a preliminary step towards articulating the current model of genetic counseling practice. The components emphasize process and they are derived from the vantage point of genetic counselor educators. Practitioners may have a very different view of and may vary in their adherence to a model of genetic counseling practice. For example, Biesecker (2001) describes how her students frequently are told by staff at their clinical rotations that *technical genetic information* is a primary focus in contrast to the *psychosocial counseling* emphasis in their graduate program.

Due to time constraints, a more detailed description of the model was not generated (in particular, strategies and behaviors were only *touched on*), prioritization of the components was not discussed, and there was insufficient time to fully address the questions of whether there are variations in the model due to patient cultural considerations and/or genetic conditions/specialties. In addition, model building can provoke artificial distinctions, for instance, goals, strategies, and behaviors likely overlap and they are not necessarily limited to a given tenet. As Resta *et al.* (2006) point out, attempts to define genetic

Fig. 1 A reciprocal-
engagement model of genetic
counseling

Genetic Counseling Process

Education   Individual Attributes

Tenet: Genetic information is key   Tenets: Patient autonomy must be supported
                                                                    Patients are resilient
                                                                    Patient emotions matter

Relationship

Tenet: Relationship is
integral to genetic
counseling

Genetic Counseling Outcomes

Patient understands and applies information to

· Make decisions
· Manage condition
· Adapt to situation

Note. Each element interacts with every other element. None stand alone or work in isolation.

counseling are subjective and they reflect the definers' personal characteristics (e.g., personal and ethical values) and those of the greater society. Indeed, one participant commented that tenets are relatively unexamined beliefs that need to be examined, including their cultural limitations. Furthermore, not all training programs were represented. Finally, some studies reviewed in this paper investigated elements of genetic counseling practices in countries outside of the U.S.; while their findings support aspects of the proposed model, it is difficult to determine the extent to which this model has international applicability. For instance, differences in health care systems may affect how various components are implemented. Given these limitations, the model presented in this paper should be viewed as a *work in progress* that requires empirical validation, with particular attention to elaborating the strategies and behaviors used to implement tenets and goals.

A Reciprocal-Engagement Model of Genetic Counseling Practice

In this section we expand upon the model generated during the consensus conference. Our ideas are derived from participant discussions, from consultation with our presenters (Fox, Resta, and Weil), and from our experience as educators, researchers, and practitioners. Our model emphasizes tenets and goals as these are the components that were most fully developed during the consensus conference. Our model, which we have named a *Reciprocal-Engagement Model of Genetic Counseling Practice*, is illustrated in Fig. 1. The term *reciprocity* reflects that each element of the model is complementary and *completes* the other, while *engagement* refers to counselor and patient mutual participation in genetic counseling. The model is represented visually with a triangle that embodies the five tenets articulated by conference participants: *Education* primarily

represents the tenet of genetic information. *Individual Attributes* reflects the tenets of patient autonomy, resiliency, and emotions. *Relationship* embodies the tenet of counselor–patient relationship.

Genetic counseling is a service intended to help patients and their families gain sufficient information to help them make decisions about testing and technology, manage their genetic conditions, and cope with post-counseling/testing realities. As such, it is neither exclusively education nor is it exclusively psychosocial counseling. Genetic counselors are not lecturers and patients are not students who passively absorb information, nor are genetic counselors psychotherapists who engage their patients in personality reconstruction. Elements of both activities are present when working with patients.

What differentiates genetic counselors from other members of established professions with whom they work? We contend that the primary distinguishing factors are their understanding of genetic science and their ability to translate cutting-edge findings to patients and their families. As one conference participant stated, "We talk science with people with a psychosocial component within a genetic etiology venue."

As shown in Fig. 1 *education* is an essential element of the model. Education involves an information exchange in which the patient discloses biomedical information and the counselor provides genetic information. The process is not linear. Rather, the genetic counselor uses strategies to actively engage the patient in discussion until a mutual understanding is reached regarding the meaning of the most pertinent and accurate information (not *all* possible information).

Genetic counselor biomedical knowledge is essential, but not sufficient for ensuring that patients learn, understand, and correctly apply information to their situations. Genetic information is *loaded*, creating affective, cognitive, and behavioral reactivity in patients and their families. Patients can easily fail to comprehend, they can deny, minimize, forget, and/or otherwise distort information. As Marks identified in 1972, the *complexity* of genetic information is not what makes it so difficult for patients to comprehend, rather its *emotional impact* makes understanding difficult.

A genetic counselor's best chance for effectively educating patients is to communicate within a strong relationship while taking into account psychosocial factors. As illustrated in Fig. 1, *relationship* is at the core of the genetic counseling process. Genetic counselors need to foster a relationship characterized by trust, rapport, and good communication. Genetic counselors use basic counseling skills (attending, empathy, questioning, etc.) to create an optimal learning environment. The relationship serves as the *conduit*, providing an alliance in which the patient feels supported, cared about, connected, and validated.

The genetic counseling process is further characterized by *individual attributes* (Fig. 1). Genetic counselors and patients possess unique personal/professional histories that affect learning, including individual, familial, and cultural characteristics; values; prior knowledge, beliefs, and experience. They also vary in their resilience and emotional responses. Genetic counselors assess and address relevant patient psychosocial factors and they are aware of and manage their own psychosocial histories within an individualized process. Four general questions that help to customize the genetic counseling process are: (1) What does the patient know? (2) What does the patient think and feel about the information I'm providing? (3) How might the patient use this information to reach a decision, manage her/his condition, cope with her/his situation, etc.?) and (4) How are my own values, biases, emotions, and prior experiences affecting the learning situation (both information exchange and relationship quality)?

Within this model understanding, framing, and facilitating constitute genetic counselor macro goals, with assessment as a corresponding *macro strategy*. Assessment strategies are necessary for: (1) knowing about the patient's desire for information, determining the likely impact of information on the patient's emotional and cognitive functioning, understanding the patient's support system, resilience, and coping strategies, and assessing the patient's cultural/familial frame of reference; (2) gathering information and presenting it in a way that is useful (comprehensible, relevant), free of coercion, and able to be tolerated by the patient, given her/his emotional state and cognitive capabilities; and (3) creating a collaboration – a *give and take* in which the genetic counselor and patient are both *key informants*. The counselor is the genetics expert, and the patient is the expert regarding her/his life story; they work together to determine what is in the patient's best interests.

Shiloh (2006) uses *self-regulation* theory to explain why it is so important to assess and address patient psychosocial history in genetic counseling. According to this theory, patients vary in how they receive, perceive, and use genetic information. For instance, factors such as personal experience with a genetic condition, cultural beliefs regarding genetics and genetic conditions, and personal models of disease and inheritance affect how *objective* biomedical information is modified by a patient to fit within her or his cognitive representation. Shiloh states that "Educational approaches may not be enough to help clients correct misperceptions...foundations of clients' beliefs need to be explored before the counseling process can address misperceptions and fears" (p. 329). In a similar vein, self-reflection is necessary for genetic counselors to determine how their own history influences each genetic counseling relationship (cf. McCarthy Veach *et al.* 2003).

To summarize, in a Reciprocal Engagement Model of genetic counseling, *reciprocal engagement* refers to a

mutual process in which the genetic counselor and patient participate in an educational exchange of genetic and biomedical information shaped by their unique psychosocial identities. The genetic counselor–patient relationship is the medium in which these activities occur. The elements of this model are not discrete, they reciprocally affect each other, and each is necessary but not sufficient individually for influencing genetic counseling outcomes (i.e., patient understands and applies information to make decisions, manage a condition, and/or cope with the situation).

Implications of the Model

Training and Practice Implications

As previously noted, the components identified by conference participants are compatible with the minimal clinical practice competencies for entry level practitioners identified by the ABGC (1996). The ABGC competencies concerning work with patients *cut across* all five tenets, with particular emphasis on genetic information, genetic counselor–patient relationship, and patient autonomy. The competencies are written at the *strategy* level, describing methods for achieving desired objectives. A model helps to *flesh out* the ABGC competencies by providing a rationale (tenets), more explicit objectives (goals), and examples of the types of behaviors consistent with these strategies.

Models constitute excellent *advance organizers* for training students to become effective practitioners. For instance, the present model might be used to ground students in a *start to finish* conceptual framework that begins with genetic counselors' fundamental beliefs (tenets), proceeds to what they should strive to accomplish in genetic counseling (process and outcome goals), and offer methods for achieving those goals (strategies and behaviors). A model may assist in student performance evaluations, offering clinical supervisors a framework for developing feedback forms, and helping supervisors identify growth areas (e.g., determining whether problematic performance is a function of student confusion regarding tenets or goals, a lack of understanding of which strategies and behaviors promote particular goals, and/or inability to perform certain behaviors).

Research Suggestions

The model described in this paper offers a promising framework for investigating the effectiveness of genetic counseling services, but the strategies and behaviors need to be more fully developed and the model must be validated by research. As one participant commented, "The most insightful model is useless if people in the field don't *buy into* it." This comment illustrates the need to assess practitioner reactions to the model. The components of the present model could be tested within an existing research framework such as that proposed by Wang *et al.* (2004) who identify several potential genetic counseling outcomes. In addition, some participants remarked that the tenets seem to be universal, whereas strategies and behaviors are more *culture-specific* and *condition-specific.* If research investigations of specialty practices yield differences in emphases involving components of the model, the source(s) of those differences would need to be determined. Investigations are also needed to determine the extent to which genetic counselor *perceptions* of what they do are congruent with their *actual practice*.

Conclusion

As genetic health care evolves it becomes more important to identify and employ a successful normative model. In addition, a clearly defined practice model(s) is essential for determining success in the clinic because it will provide a foundation for evaluating the effectiveness of the service, for systematically teaching the practice, and for translating elements of this practice to primary care providers. A well-articulated model can be used to determine: (1) the relationship between genetic counseling process variables and genetic counseling outcomes (What works best under which circumstances?) and (2) professional preparation (How do we best prepare competent practitioners?). The model proposed in this paper articulates a psychosocial basis to exploring genetic information and presumes that reciprocity is integral to the relationship that is genetic counseling.

Appendix

Stimulus Questions for Consensus Conference Discussion Groups

Questions for Day 1:

- What do you think a model of practice is?
- Do you have a consciously articulated model of genetic counseling when you train students, or does that model "just seem to be there"? If you do have a model, what are the components of that model?
- Is the model of genetic counseling that you teach similar to what you were taught?
- Has the model of genetic counseling that you teach changed over time? If so, how and why?
- Where do you look to for guidance when you wish to articulate, change, or question genetic counseling practice? Specific journals? Specific authors? Meetings? Discussions with colleagues? Other?
- Which field or profession other than genetics and psychology/counseling/therapy do you think makes the greatest contribution to our model?
- What do you think are the three largest sources of inertia or resistance to further development of the psychosocial component of genetic counseling?

Facilitator Prompts:

- What term do you prefer: Client? Patient? Counselee? Consumer? Other? Why?
- What do you consider to be success in genetic counseling? Why?
- What is failure in genetic counseling? Why?
- What metaphors capture the genetic counseling relationship?

Questions for Day 2:

- What tenets (assumptions, beliefs, principles, convictions) guide genetic counseling practice?
- What are genetic counseling's fundamental beliefs/assumptions about human nature, as they pertain to genetic counseling. [Examples of fundamental beliefs/assumptions from mental health counseling might include: (1)You cannot make other persons do what they don't want to, even when their own life is at stake; (2) People are strong, capable, and resilient, despite their situation; (3) Relationship above all else is essential).]
- What are the goals (objectives, aims, purposes) of genetic counseling? What are realistic counseling goals for genetic counselors?
- What strategies (plans, approaches, methods) do genetic counselors use to achieve these goals?

- What behaviors (actions) do genetic counselors engage in to implement these strategies?
- Identify the tenets, goals, strategies, and behaviors that are most essential to a genetic counseling session and the tenets, goals, strategies, and behaviors that are least essential to a genetic counseling session.
- Do tenets, goals, strategies, and behaviors vary by genetic counseling specialty/patient condition (e.g., assisted reproductive technologies, pediatrics, prenatal, neurogenetics, psychiatric, and cancer genetics)? If so, how?
- Do tenets, goals, strategies, and behaviors vary by patient cultural background? If so, how?

Facilitator Prompts:

- What do I really believe about genetic counseling?
- How does that impact what I do with clients? What I teach to students?

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