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Barriers to Expansion of Supervision Networks at Genetic Counseling Training Programs

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BARRIERS TO EXPANSION OF SUPERVISION NETWORKS AT GENETIC
COUNSELING TRAINING PROGRAMS

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A

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BARRIERS TO EXPANSION OF SUPERVISION NETWORKS AT GENETIC COUNSELING TRAINING PROGRAMS

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Job openings outpace new graduates due to exponential growth in genetic counseling, leading to a workforce shortage. Expanding training slots to meet this demand presumably is linked to the number of supervisors. Thus, there is a need to systematically review barriers to supervision. This study aimed to determine and compare barriers to expansion of supervision networks at genetic counseling training programs as perceived by current supervisors, non-supervisors, and Program Directors. Certified genetic counselors were recruited via National Society of Genetic Counselors e-blast with an invitation to complete an online survey; Program Directors were emailed personal letters of invitation. Twenty-three Program Directors, 216 supervisors, and 98 non-supervisors completed surveys. Respondents rated the impactfulness of 35 barriers (scale: 1=not impactful to 4=very impactful); Kruskal-Wallis and Wilcoxon ranked sum tests were used to compare perceptions. Half of supervisors (51%) indicated a willingness to increase supervision and all non-supervisors were willing to supervise. All agreed; however, that being too busy impacted ability to expand time supervising. This is highlighted by the most impactful barriers for supervisors: lack of time, too many responsibilities, intensive nature of supervision, desire for breaks, and unfilled positions. Non-supervisors noted unique barriers ($p < 0.005$): distance from programs, institutional barriers, and being in a non-clinical role (industry, laboratory or telemedicine). Program Directors' perceptions were congruent with the exception of lack of money, prefer not to supervise, and counselors have never been asked. In order to increase the supervision network and provide comprehensive experiences for genetic counseling students, the profession

must examine current service delivery models to increase workplace efficiency, reconsider the current supervision paradigm, and explore how cases outside of the direct patient care setting can be recognized as countable logbook cases or as valuable experiences in graduates' portfolios.

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INTRODUCTION

In recent years, the demand for genetic counseling has grown exponentially. Thirty-four genetic counseling programs in North America graduated approximately 300 students in 2016; yet, the number of job openings is more than double the number of new graduates of genetic counseling training programs (Larsen Haidle, 2015). As the demand for genetic counselors grows, genetic counselors are pressed to find ways to become more efficient, and/or genetic counseling training programs may need to consider alternate training models in order to graduate more students.

There are many perceived barriers regarding the expansion of current genetic counseling training programs. One of the most commonly cited barriers to increasing program size is the number of clinical training sites with board certified genetic counselors to provide supervision, as clinical supervision plays a large role in the training of genetic counseling students (Pan, Yashar, Pothast, & Wicklund, 2016). The Accreditation Council for Genetic Counseling (ACGC) requires that genetic counseling students complete at least 50 cases under the supervision of a board certified genetic counselor (CGC) or medical geneticist (ACGC, 2013). In order to meet accreditation standards, programs must have access to sufficient numbers of board certified clinical supervisors in order to ensure appropriate training of each student. To facilitate expansion of genetic counseling programs under the current standards, there must first be a focus on the expansion of supervisory networks through which to provide clinical supervision.

Clinical supervisors are integral to student success. The supervision role includes a variety of activities, including case preparation, live supervision, consultation, and debriefing (Callanan, McCarthy Veach, & LeRoy, 2016; Hendrickson, McCarthy Veach & LeRoy, 2002). In addition, supervisors play an essential role with ongoing guidance and support, socialization into the profession, and development of knowledge and skills required to become an independent counselor upon graduation (McCarthy Veach & LeRoy, 2009). When surveyed

about the reasons they became supervisors, the most common reasons cited by genetic counselors were that they enjoyed teaching and that they wanted to give back to the profession (Lindh, Veach, Cikanek, & LeRoy, 2003). The positive takeaways from supervision of genetic counseling students included being able to shape the future of the profession, reduced caseload, and increased confidence (Hendrickson et al., 2002).

In 2011, the American Board of Genetic Counseling (ABGC) completed a practice analysis which indicated that genetic counselors were participating in supervision as part of their jobs (ABGC, 2011). In 2013, genetic counseling supervisor competencies were created by authors from several genetic counseling training programs to help define supervisor characteristics, knowledge, and skills required to provide clinical supervision for genetic counseling students (Eubanks Higgins, Veach, MacFarlane, Borders, LeRoy, & Callanan, 2013). The same year, ACGC expanded the practice based competencies for genetic counseling training programs to include “understanding the methods, roles, and responsibilities of the process of clinical supervision of trainees” (Doyle et al., 2016). With the addition of this practice based competency, genetic counseling students should gain exposure to supervision training that was not previously required during training.

The majority of genetic counselors report participation in supervision at some point throughout their career. Seventy-two percent of the respondents to the 2016 National Society of Genetic Counselors (NSGC) Professional Status Survey (PSS) reported involvement in the teaching and education of genetic counseling students (NSGC, 2016). Yet 28% of genetic counselors have no involvement in student education, suggesting there is room to investigate why a subset do not supervise.

Although some research has investigated why people would not want to become supervisors, most research to date has focused on ascertaining factors that make the provision of supervision challenging. Difficulties that have been noted include: lack of training opportunities, high turnover rate of staff, competition with other trainees, institutional restrictions, time and work burdens, difficulty in clinical duties, difficulty supervising

psychosocial counseling, and problems with boundary and relationship issues with students (Borders, Eubanks, & Callanan, 2006; Gu, McCarthy Veach, Eubanks, LeRoy, & Callanan, 2011; Hendrickson et al., 2002). Genetic counselors who were not currently supervising often indicated they had either never been asked, or they did not live in proximity to a program (Lindh et al., 2003).

In addition to acknowledging the difficult aspects of supervision, it is important to determine the overt barriers to being in a supervisory role. There is a need for a systematic review of barriers in order to build a consensus on how to move forward. Therefore this study aimed to determine the barriers to the expansion of supervision networks at genetic counseling training programs as perceived by key stakeholders: Program Directors of ACGC accredited genetic counseling training programs, and certified genetic counselors, including both current supervisors and non-supervisors. In addition, perceptions of these three groups were compared to determine if there is consensus regarding the most impactful barriers.

METHODS

PARTICIPANTS

Program Directors from all 34 ACGC accredited genetic counseling training programs with students enrolled as of May 2016 were eligible for participation (31 in the United States, and three in Canada). Eligible Program Directors were identified through the Association of Genetic Counseling Program Directors (AGCPD) Directory.

Board certified genetic counselors were contacted through the National Society of Genetic Counselors via e-blast. This e-blast reached an estimated 3,431 individuals including genetic counselors, recent graduates, current students, retired genetic counselors, and other healthcare professionals. Participants were split into two groups based on responses to initial demographic information: those who are currently supervisors for genetic counseling training programs or have supervised in the past 2 years (supervisors), and those who are not currently

supervising and have not done so in the past 2 years (non-supervisors). Genetic counseling students and those not yet board certified were excluded.

INSTRUMENTATION

The online data collection software and survey tool Qualtrics was used to create and administer the surveys (Qualtrics, Provo, UT). All eligible participants were emailed an invitation to participate and a link to the survey (Appendix A and B). The Program Director survey consisted of 34 questions about the clinical rotation format and supervision network, as well as a Likert scale question that contained 30 proposed barriers to expansion of the genetic counseling supervisory network (Appendix C). This Likert scale question was on a four point scale from “not impactful” to “very impactful” including a “not applicable” response option. Barriers were based on previous literature showing challenging aspects of supervision as well as personal experiences of the authors. This study was approved by the Institutional Review Board (IRB) at the University of Texas Health Science Center at Houston (HSC-MS-16-0444).

Responses from the Program Director survey were used to identify additional barriers for inclusion on the Certified Genetic Counseling (CGC) survey. Five proposed barriers were added to the original list of 30 barriers. The updated survey was approved by IRB (HSC-MS-16-0444). All CGC participants answered demographic questions and were then divided into supervisor and non-supervisor groups for subsequent sections based on initial responses. Supervisors completed 17 questions about their supervisory role while non-supervisors were asked eight questions about experience or interest in supervision (Appendix D).

PROCEDURES

This two-phase cross-sectional study addressed three populations of genetic counselors to assess barriers towards the expansion of the supervision network. In the first phase of this study, Program Directors of accredited genetic counseling training programs were contacted via email with a description of the study, a letter of invitation, and link to the informed

consent and survey. Program Directors were sent a reminder email two weeks following the initial email. Responses were collected between June 24, 2016 and August 18, 2016.

Additional barriers identified from Program Directors were used to augment the barriers included on the survey for Certified Genetic Counselors. The second phase was sent out via a National Society of Genetic Counselors e-blast and included a description of the study via a letter of invitation and a link to the informed consent and survey. A reminder email was sent three weeks following the initial email blast. Responses were collected between October 19, 2016 and December 6, 2016. All certified genetic counselor participants who completed the survey were given the choice to enter their email in a separate window to be entered into a drawing for one of two available \$25 Amazon gift cards. Responses to surveys were anonymous and unlinked from participant name and email.

DATA ANALYSIS

Survey responses were collected in Qualtrics and coded into a Microsoft Excel file stored on a secure server (Qualtrics, Provo, UT). All eligible respondents who completed the entire survey were included in the data analysis. Data were analyzed with STATA and statistical significance was assumed at a Type 1 error rate of 5% ($p < 0.05$), (StataCorp, v.13.1, Collee Station, TX). Means and frequencies were reported for demographic variables in each participant group. Chi square analyses were used to determine the difference between supervisor and non-supervisor demographics. Demographics for the supervisor and non-supervisor groups were compared to genetic counselor respondents who completed the 2016 PSS survey using one-sample test of proportions with level of significance of $p < 0.05$. For Likert scale barriers, summary statistics were collected including median, interquartile range and count for each participant group. Statistical analyses of responses for barriers were conducted after exclusion of “not applicable” responses. Applicable Likert scale responses of impactful or very impactful were collapsed into “impactful” by adding percentage of individuals who indicated either impactful or very impactful. Percentage of respondents who indicated

barriers were “impactful” were used to rank barriers from most impactful to least impactful. Non-collapsed responses to Likert scale barriers were compared between all three groups using Kruskal-Wallis equality-of-populations rank test. For barriers only addressed in the CGC survey, responses were compared between supervisors and non-supervisors using the Wilcoxon ranked sum test.

RESULTS

DEMOGRAPHICS

Of the 34 ACGC accredited genetic counseling training programs recruited, 23 Program Directors completed the survey (68%). Of the estimated 3,431 individuals that were sent a study invitation via the NSGC e-blast there were 423 respondents (12.3%). Thirty-five responses were excluded because participants were ineligible (current students or not yet board certified), and 74 responses were incomplete and thus excluded. There were 314 eligible individuals who completed the entire survey, including Likert scale questions (Appendix E). Of certified genetic counselors, 69% ($n = 216$) identified as supervisors and 31% ($n = 98$) were non-supervisors. No statistically significant demographic differences ($p > 0.05$) were noted between supervisors and non-supervisors for gender ($p = 0.630$), ethnicity ($p = 0.333$), NSGC region ($p = 0.158$), job classification ($p = 0.504$), or specialty ($p = 0.164$), (Table 1). While supervisors and non-supervisors were not differently distributed among NSGC regions, 60% of current supervisors worked within 25 miles of a genetic counseling training program compared to 32% of non-supervisors. The majority of respondents were female (96%), Caucasian (91%), and identified genetic counselor as their primary job classification (78%). There were no statistically significant differences ($p > 0.05$) in demographics noted between the present sample and respondents to the 2016 Professional Status Survey including gender, ethnicity, supervisor status and NSGC region (NSGC, 2016).

Table 1. Demographic data for certified genetic counselors

	Supervisors (n = 216)		Non-Supervisors (n = 98)		p value
	n	%	n	%	
GENDER					0.630
Female	208	97	94	97	
Male	6	3	3	3	
ETHNICITY					0.333
Caucasian	198	92	89	91	
Asian	7	3	5	5	
African American	3	2	0	0	
Asian Indian	1	1	2	2	
Other	3	2	2	2	
REGION					0.158
Region 1	16	8	5	5	
Region 2	46	22	23	24	
Region 3	24	11	11	12	
Region 4	70	33	23	24	
Region 5	33	15	12	13	
Region 6	24	11	21	22	
YEAR CERTIFIED					0.462
2010 – 2016	137	64	62	67	
2000 – 2009	48	23	17	18	
1990 – 1999	22	10	13	14	
1980 – 1989	7	3	1	1	
JOB CLASSIFICATION					0.504
Genetic counselor	168	78	75	77	
Senior genetic counselor	9	4	1	1	
Laboratory genetic counselor	6	3	6	6	
Other*	33	15	16	16	
SPECIALTY					0.164
Cancer Genetics	70	36	43	44	
Prenatal	40	18	10	10	
Pediatrics	29	13	9	9	
General Genetics	17	8	7	7	
Laboratory	11	5	12	13	
Other	49	20	17	17	

* Other = Assistant Director, Clinical Coordinator, Director/Clinical Director/Executive Director, Genetic Consultant, Genetic Services Manager, Genetic Specialist/Medical Specialist, Genetic Counseling Training Program Assistant Director, Genetic Counseling Training Program Director, Medical Science Liaison, Manager (other), Product Manager/Product Specialist, Professor/Instructor/Lecturer/Assistant Professor/Associate Professor, Project Manager/Project Director, Research/Study Coordinator, Other

BARRIERS TO SUPERVISION

Program Directors

When given the option between number of clinic sites, location of clinic sites and number of supervisors, 78% ($n = 18$) of Program Directors noted the number of supervisors as a major constraint on clinical rotation set up. Forty-four percent ($n = 10$) of Program Directors indicated they would change their clinical rotation set up if they had unlimited access to supervisors/sites, while 56% would not do so. Importantly, 96% ($n = 22$) of Program Directors would take more students if they had unlimited access to supervisors/sites. Between adding new supervisors to their network or better utilizing current supervisors, 43% ($n = 10$) see adding new supervisors as the most pressing issue, 9% ($n = 2$) believe that better utilizing current supervisors is most pressing, and 39% ($n = 9$) believe that both are pressing issues, while 9% ($n = 2$) indicated neither.

Of the 30 barriers presented to Program Directors, no barriers received a median score of very impactful. Five barriers received a median score of impactful: genetic counselors balancing too many other responsibilities, genetic counselors leave and are not replaced, genetic counselors teach other students, supervisor burnout, and genetic counselors are too far away to take students frequently (Table 2). Over half of Program Directors rated these five barriers as “impactful” (Table 2), (Figure 1), (Appendix E).

Supervisors

Of individuals classified as supervisors, 87% ($n = 188$) were currently supervising (within the last year) and 13% ($n=28$) had supervised within the last 1-2 years. Slightly less than half of supervisors (46%, $n = 100$) only supervised students during the school year, while 31% ($n = 66$) only supervised during the summer, and 23% ($n = 50$) did both. Approximately half of the supervisors (51%) indicated they would be willing to take a student for a larger percentage of their clinic time. Supervisors indicated they average 25% of their clinic time with students, and the ideal percentage of time would be around 30%.

Table 2. Ratings of Impactfulness of Barriers

	Supervisors (n = 216)				Non-Supervisors (n = 98)				Program Directors (n = 23)			
	Rank	%	"Impactful" n/ total n*	Median (IQR)	Rank	%	"Impactful" n/ total n*	Median (IQR)	Rank	%	"Impactful" n/ total n*	Median (IQR)
Lack of time	1	80	167/210	4 (3-4)	2	57	54/95	3 (2-4)	8	41	9/22	2 (2-3)
Other responsibilities	2	61	130/212	3 (2-4)	6	49	46/93	2 (2-3)	1	77	17/22	3 (3-4)
Intensive nature	3	44	93/210	2 (1-3)	15	34	30/89	2 (1-3)	-	-	-	-
Desire breaks	4	40	82/207	2 (1-3)	19	26	21/80	1 (1-3)	-	-	-	-
Unfilled positions	5	39	66/168	2 (1-3)	12	39	25/68	2 (1-3)	-	-	-	-
Heavy patient volume	6	38	75/197	2 (1-3)	13	38	31/82	2 (1-3)	16	27	6/22	2 (2-3)
Supervisor burnout	6	38	79/209	2 (1-3)	22	23	19/82	1 (1-2)	5	55	11/20	3 (2-3.5)
Scheduling difficulties	8	35	71/203	2 (1-3)	17	28	23/83	2 (1-3)	16	27	6/22	2 (1-3)
Never been asked	9	34	50/148	1 (1-3)	1	65	49/75	3 (2-4)	27	0	1/6	1 (1-1)
Other students	10	33	60/184	2 (1-3)	28	14	8/58	2 (1-2)	3	64	14/22	3 (2-3)
Institutional barriers	11	28	58/206	2 (1-3)	3	52	45/86	3 (2-4)	10	35	7/20	2 (1-3)
Too far away	11	28	44/155	1 (1-3)	4	51	41/80	3 (1-4)	4	57	12/21	3 (1-3)
Administration	13	25	51/202	2 (1-3)	8	44	35/80	2 (1-3.5)	6	43	9/21	2 (2-3)
Miss counseling on own	13	25	69/200	2 (1-3)	18	27	23/84	2 (1-3)	11	33	7/21	1 (1-3)
Inconsistent	15	23	42/184	1 (1-2)	25	20	15/75	2 (1-2)	12	32	7/22	2 (1-3)
Industry	16	22	20/93	1 (1-1)	7	47	17/36	1.5 (1-4)	6	43	9/21	2 (1-3)
Compromise care	16	22	46/205	2 (1-2)	23	22	20/89	2 (1-2)	21	14	3/22	1.5 (1-2)
Lab counselor	18	21	20/97	1 (1-2)	5	50	18/36	2.5 (1-4)	12	32	7/22	2 (1-3)
Affiliation agreements	18	21	41/197	1 (1-2)	13	38	30/78	2 (1-3)	15	29	6/21	2 (1-3)
Leaves not replaced	20	19	18/94	1 (1-1)	11	40	12/30	1 (1-4)	2	71	15/21	3 (2-4)
Multiple requests	21	18	30/168	1 (1-2)	27	15	9/61	1 (1-2)	-	-	-	-
Lack of training	22	17	35/204	1 (1-2)	9	41	37/90	2 (1-3)	27	0	0/21	1 (1-1)
Lack of money	22	17	33/200	1 (1-2)	28	14	12/87	1 (1-2)	9	38	8/21	2 (2-3)
Student knowledge	24	13	26/207	1 (1-2)	32	9	8/87	1 (1-2)	23	5	1/21	1 (1-1)
Lack of competencies	25	12	24/205	1 (1-2)	19	26	22/85	2 (1-3)	27	0	0/20	1 (1-1)
Low patient volume	25	12	24/194	1 (1-2)	23	22	18/83	1 (1-2)	19	19	4/22	1.5 (1-2)
Different contribution	27	11	19/178	1 (1-1)	26	16	12/76	1 (1-2)	27	0	0/20	1 (1-1)
Lack of confidence	28	9	19/203	1 (1-2)	21	24	20/84	2 (1-2)	-	-	-	-
Telemedicine	29	8	7/87	1 (1-1)	9	41	13/32	1 (1-4)	12	32	6/19	2 (1-3)
Student professional	29	8	8/206	1 (1-2)	33	7	4/88	1 (1-2)	23	5	2/21	1 (1-2)
Not far out of school	31	7	11/148	1 (1-1.5)	16	29	23/79	2 (1-3)	19	19	4/21	2 (1-2)
Prefer not to supervise	31	7	11/168	1 (1-1)	30	13	9/69	1 (1-2)	16	27	6/22	2 (1-3)
Psychosocial supervision	31	7	13/200	1 (1-2)	31	10	9/88	1 (1-2)	23	5	1/21	1 (1-2)
Boundary issues	34	4	16/208	1 (1-1)	34	5	6/88	1 (1-1)	22	10	1/21	1 (1-1)
Prior negative feedback	35	2	2/113	1 (1-1)	35	3	1/30	1 (1-1)	23	5	1/22	1 (1-2)

Rank = Ranking of barriers from 1 = most impactful to 35 = least impactful

"Impactful" = respondents who indicated impactful or very impactful

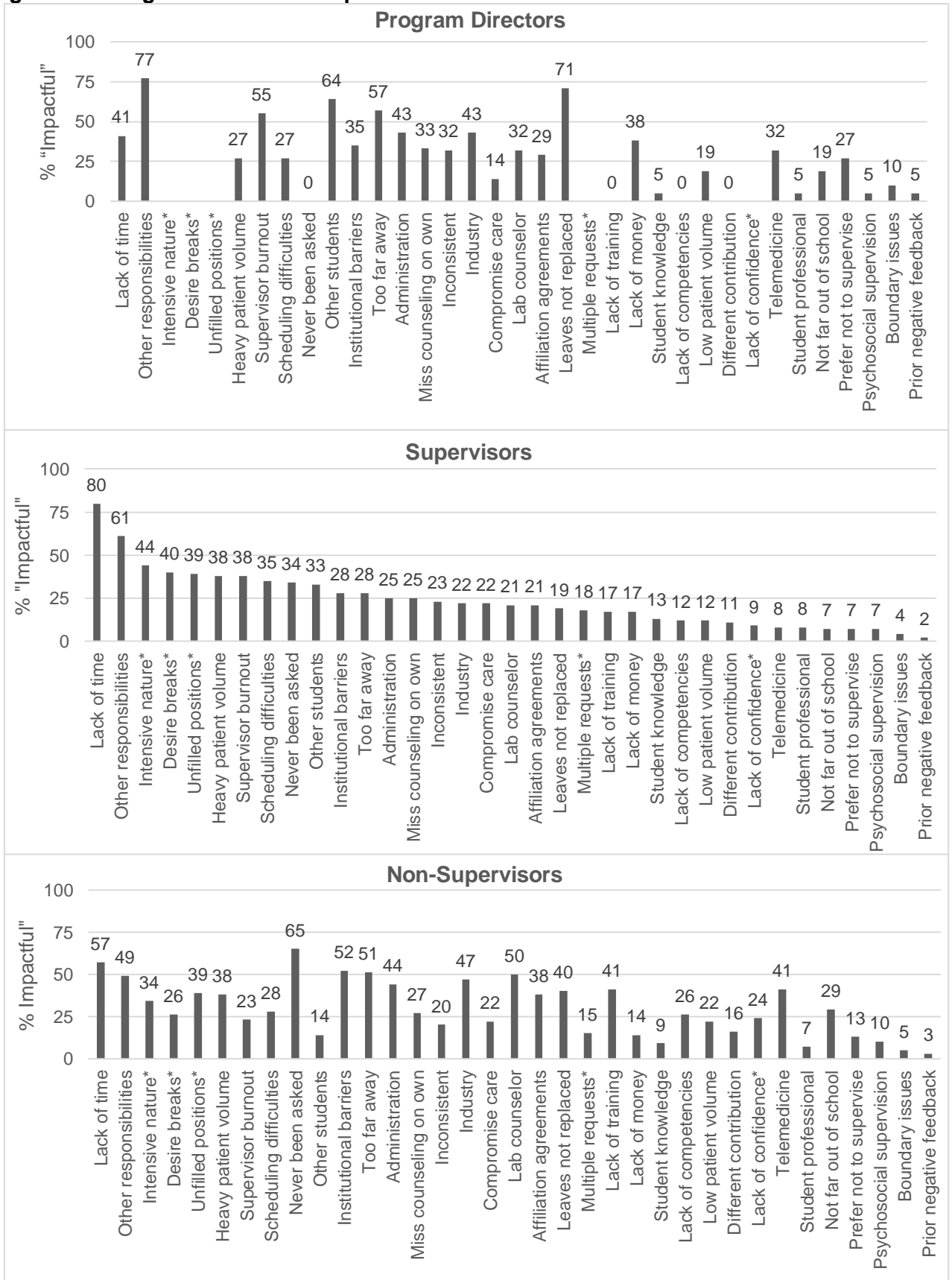
% = percentage of respondents who indicated impactful or very impactful

n = number of respondents who indicated impactful or very impactful

*Total n = applicable respondents (NA responses excluded)

IQR = interquartile range

Figure 1. Ratings of Barriers to Supervision



% "Impactful" = percentage of respondents who indicated impactful or very impactful, with NA responses excluded.

The most impactful barriers identified by current supervisors were: lack of time, balancing too many other responsibilities, the intensive nature of the supervision process, desire for breaks throughout the year, and unfilled positions at institution (Table 2). Only 2 of the 35 barriers presented to supervisors received a median ranking of impactful (too many responsibilities) or very impactful (lack of time), (Table 2), (Figure 1). Eighty percent of supervisors rated lack of time as “impactful”, and 61% rated balancing other responsibilities as “impactful”; no other barriers were identified by a majority of supervisors as “impactful”.

Non-Supervisors

Of genetic counselors who were not currently supervising ($n = 98$), 70% ($n = 68$) had never been a supervisor for genetic counseling students. Common reasons for never having been a supervisor included: never been asked (49%, $n = 34$), being a new graduate (43%, $n = 30$), not near a program (38%, $n = 26$), types of cases they see do not count toward logbooks (25%, $n = 170$), and they had not been interested in supervising (9%, $n = 6$). Of those who had never been asked to supervise, half were new graduates ($n = 15$), half were located greater than 100 miles from a program ($n = 16$) and one third indicated the definition of a countable case ($n = 9$) was a barrier. Of those who had been a supervisor previously (> 2 years ago), 85% ($n = 23$) indicated they had changed jobs and either cases are no longer countable or they were no longer near a genetic counseling training program. Thirty-two percent ($n = 31$) of non-supervisors lived within 25 miles of a genetic counseling training program: 11 were new graduates, and 12 worked in laboratory or research specialty.

When non-supervisors were surveyed about situations in which they would be willing to supervise, no one indicated they would “never” be willing. Twenty-eight percent ($n = 27$) indicated a willingness to supervise after they accrued more years of experience as a genetic counselor. Thirty-four percent ($n = 33$) said they would supervise if a genetic counseling training program opened nearby. Over half indicated they would be willing to supervise students during the summer (53%, $n = 51$) and/or the school year (55%, $n = 53$).

The most impactful barriers identified by non-supervisors included: lack of time, they have never been asked, institutional barriers, they are too far away from a program, or uncountable cases in laboratory. At least half of all non-supervisors rated these five barriers as “impactful” (Table 2), (Figure 1).

COMPARISON OF BARRIERS TO SUPERVISION

Similarities in Perceptions

A number of similarities in perceptions of the impactfulness of barriers were noted among Program Directors, supervisors and non-supervisors. None of the groups rated difficulties working with students as a top barrier; specifically, there were no significant differences between groups in ratings for: difficulties working with students on knowledge and proficiency issues ($p = 0.290$), difficulty working with students on professional development issues ($p = 0.965$), difficulty with relationship and boundary issues with students ($p = 0.710$), and difficulty supervising psychosocial counseling ($p = 0.916$), (Table 3). Additional barriers perceived by the three groups as not impactful or somewhat impactful include: low patient volume ($p = 0.196$), heavy patient volume ($p = 0.734$), scheduling difficulties ($p = 0.522$), miss counseling on own ($p = 0.143$), worry about compromising patient care ($p = 0.629$), inconsistency to take a student ($p = 0.124$), and prefer to contribute in different capacity ($p = 0.482$). Three of the five barriers identified by Program Directors in open ended responses were ranked similarly as not impactful or somewhat impactful by both supervisors and non-supervisors: unfilled positions ($p = 0.554$), requests from multiple programs ($p = 0.674$), and the intensive nature of supervision ($p = 0.179$), (Table 2).

While there was a statistically significant difference in rating of lack of time ($p < 0.001$) and balancing other responsibilities ($p = 0.006$), these barriers were identified as top barriers among all three populations (Table 3). Lack of time was the most impactful barrier for supervisors and the second most impactful for non-supervisors (Table 2). Similarly, balancing other responsibilities was the top barrier identified by Program Directors and the second and

sixth most impactful barrier identified by supervisors and non-supervisors, respectively (Table 2).

Table 3. Barriers to Supervision

Full barrier name	Code name	p value
Lack of time	Lack of time	<0.001
Balancing too many other responsibilities	Other responsibilities	0.006
Intensive nature of supervision process*	Intensive nature	0.179
Desire to have breaks throughout the year*	Desire breaks	0.001
Open/ unfilled genetic counseling positions at my institution*	Unfilled positions	0.554
Too heavy patient volume	Heavy patient volume	0.734
Supervisor burn out	Supervisor burnout	0.001
Scheduling difficulties	Scheduling difficulties	0.522
Never been asked to supervise more	Never been asked	<0.001
Teach other students (med students, etc.)	Other students	<0.001
Institutional barriers (legal, hospital credentials, direct management rules, etc.)	Institutional barriers	<0.001
Too far away from a program to take students frequently	Too far away	<0.001
Lack of support from clinic site administration	Administration	0.003
Miss counseling on my own	Miss counseling on own	0.143
Unable to consistently take a student	Inconsistent	0.124
Worried about compromising the care of patients	Compromise care	0.629
Work as a lab counselor and thus cases are not countable	Industry	0.001
Difficult to secure affiliation agreements (or memorandum of understanding) with programs	Affiliation agreements	0.011
Work in industry and thus cases are not countable	Lab counselor	0.001
Used to supervise until left site	Leaves not replaced	<0.001
Increased requests from multiple programs to supervise*	Multiple requests	0.674
Lack of money	Lack of money	0.001
Lack of access to supervision training	Lack of training	<0.001
Difficulty working with students on knowledge and proficiency issues	Student knowledge	0.290
Lack of written supervision competencies (list of skills/ requirements)	Lack of competencies	<0.001
Not enough patient volume	Low patient volume	0.196
Prefer to contribute to the profession in a different capacity	Different contribution	0.481
Lack of confidence in supervision*	Lack of confidence	<0.001
Difficulty working with students on professional development issues	Student professional	0.965
Work in telemedicine and thus not enough cases are countable	Telemedicine	<0.001
Difficulty supervising psychosocial counseling	Psychosocial supervision	0.916
Prefer not to supervise	Prefer not to supervise	0.001
Not far enough out of school	Not far out of school	<0.001
Difficulty with relationship and boundary issues with students	Boundary issues	0.710
Utilized less by program to supervise based on prior negative feedback	Prior negative feedback	0.012

p value = comparison of Likert scale responses between Program Directors, supervisors and non-supervisors

** barriers addressed only in CGC survey*

Differences in Perceptions

Some barriers seemed to be unique to non-supervisors as compared to supervisors with respect to their perceived impact. Non-supervisors were significantly more likely to rate uncountable cases in industry ($p = 0.001$), lab counseling ($p = 0.001$) and telemedicine ($p < 0.001$) as very impactful as compared to both supervisors and Program Directors (Table 3). Lack of support from clinic site administration ($p = 0.003$), difficulty securing affiliation agreements ($p = 0.011$), and institutional barriers ($p < 0.001$) were noted to be more impactful by non-supervisors compared to supervisors (Table 3). Distance from a genetic counseling training program is another barrier seemingly unique to non-supervisors ($p < 0.001$) with twice as many non-supervisors indicating this was impactful as compared to current supervisors (Table 2). Non-supervisors were more likely to rate lack of supervision training ($p < 0.001$) and lack of supervision competencies ($p < 0.001$) as impactful compared to both supervisors and Program Directors. Supervisors were three times more likely than non-supervisors to have attended a supervision workshop: 65% ($n = 139$) and 22% ($n = 22$), respectively ($p < 0.001$). Related to training and competencies, non-supervisors rated lack of confidence as somewhat impactful compared to supervisors ranking this as not impactful ($p < 0.001$), (Table 2).

Perceptions of the impact of some barriers appeared to be discordant between Program Directors and certified genetic counselors. Compared to supervisors and non-supervisors, Program Directors were significantly more likely to rate lack of money ($p = 0.001$) and “prefer not to supervise” ($p < 0.001$) as impactful. In contrast, Program Directors were significantly less likely than non-supervisors to rate “never been asked” ($p < 0.001$) as an impactful barrier. While many Program Directors identified never been asked as “not applicable”, this was the top barrier identified by non-supervisors (Table 2).

DISCUSSION

Given the current shortage of genetic counselors in the workforce, it is important to consider how to graduate more counselors from accredited training programs. In this present study, Program Directors believed that adding new supervisors was the most pressing issue in expanding their supervision network and expressed concern that genetic counselors may be unwilling to act as supervisors. In surveying supervisors and non-supervisors, this does not appear to be the case. The fact that so few individuals ranked “prefer not to supervise” as “impactful” is telling. The findings suggest they are not unwilling, there are simply other factors preventing them from becoming a supervisor or increasing their supervision roles.

All five of the most impactful barriers to supervisors increasing their supervision roles are related to being too busy: lack of time, balancing other responsibilities, the intensive nature of the supervision process, desire for breaks throughout the year, and unfilled genetic counselor positions at their institution. Supervisors are interested in increasing their supervision roles, as demonstrated by half of those respondents indicating they could increase student time. Yet, as Program Directors indicated in open-ended responses, and supervisors affirmed, supervisors desire breaks throughout the year. Despite wanting to facilitate supervisors balancing busy schedules and other responsibilities to prevent burnout, breaks in supervision may lead to Program Directors feeling uneasy about the number of consistent sites they have in their supervision network. One of the top barriers identified by Program Directors, “leaves not replaced,” adds to the concern regarding consistent sites, as it increases uncertainty for Program Directors to rely on current supervision networks. It also adds to genetic counselors being too busy in their current roles, as experienced counselors are leaving clinic. Supervision of genetic counseling students is currently an intensive process with one-on-one live supervision of every case students see during training (Callanan et al., 2016; McCarthy Veach & LeRoy, 2009). There may be room for the profession to investigate the current paradigm of supervision to determine if there is a less intensive way for genetic counselors to supervise

students while retaining quality interactions. Live supervision can be used in combination with other supervision techniques such as case consultation, video or audio recording of sessions, interpersonal process recall, role play and role reversal, modeling and demonstration, and group or triadic supervision (Corey, Haynes, Moutlin, Muratori, 2010). Alternatively, increasing the efficiency of genetic counselors by relieving them of tasks that are not essential to be performed by a genetic counselor may leave additional time for genetic counselor specific roles such as supervision. This may be another way to expand supervision opportunities. Some authors suggest employing genetic counseling assistants may be one such way to improve efficiency (Pirzadeh-Miller, Robinson, Read, & Ross, 2016).

While perceived lack of time and balancing other responsibilities are barriers to supervision that cut across the CGC spectrum, non-supervisors identified additional barriers that are unique to their specific situation, such as having never been asked, being a recent graduate, not being near a program, institutional barriers, and not seeing countable cases. Of note, while a majority of non-supervisors indicated having never being asked to be a supervisor was an impactful barrier, Program Directors, in contrast, indicated this barrier was not applicable. A possible explanation for this apparent disconnect is that Program Directors believe that they have approached all individuals in their network who fit the current paradigm of supervision (CGC who sees countable cases in close geographic proximity to program), while the non-supervisors see room to stretch this paradigm.

Exploration of supplementary models for clinical rotations could lead to an expansion of supervision networks to include those farther away from genetic counseling training programs. Approximately half of non-supervisors indicated they would be willing to host a student during the summer and/or the school year, yet a majority are not located near a training program. Many programs are amenable to students using part or all of the summer to complete clinical rotations away from the home institution. Furthermore, the now wide spread access to distance learning may facilitate consideration of rotations away from the main hub throughout the

academic year. Unfortunately, difficulty obtaining affiliation agreements was viewed as an impactful barrier for non-supervisors, and this is often an important component in facilitating distance rotations. Long term collaborative agreements could ease the institutional barriers that may prevent interested genetic counselors from providing supervision. In contrast to genetic counselors, Program Directors identified a lack of money as an impactful barrier towards supervision. This may reflect discussions between Program Directors and institutional personnel (e.g. paying for supervision) as opposed to discussions with the genetic counselors in clinic. Future studies may wish to investigate the barriers perceived by clinics and institutions to bring light to this issue.

Another way in which changing the current paradigm may alleviate the supervision burden is to expand the definition of a countable case. One-quarter of non-supervisors indicated they had never supervised before because the cases they see are uncountable. The term “non-traditional” genetic counseling was originally applied to genetic counselors who were not involved in direct patient care (Holle, 2016). Yet in 2016, 23% of genetic counselors were in non-clinical roles, suggesting a shift in the profession that should be reflected in training (NSGC, 2016). While ACGC allows for portfolio experiences in non-clinical roles, programs may be afraid to shift emphasis to laboratory, industry and research without formal recognition by the accrediting body. As more individuals choose positions in the laboratory, industry or telemedicine fields of genetic counseling, training programs need to reflect this trend during training in order to prepare students for any career path. Changing the definition of a countable case would expedite this shift. Findings from this study might assist the ACGC Clinical Training Assessment Taskforce that was convened in May of 2016 in its discussion of what should constitute a “countable case.”

Another avenue to increase the number of supervisors might be to increase the availability of supervisor training. Non-supervisors were more likely than Program Directors and supervisors to indicate the lack of supervision training and competencies were impactful

barriers. Lack of confidence in supervision was also impactful for the present group of non-supervisors, a finding that is congruent with previous studies (Atzinger, He, & Wusik, 2015). Current supervisors and recent graduates typically receive training in supervision from the training programs, yet potential supervisors likely would benefit from increased access to supervision workshops to increase confidence and preparedness. This may be an area where the NSGC can work with the Association of Genetic Counseling Program Directors to create continuing education materials.

Program Directors, supervisors and non-supervisors uniformly perceived difficulties working with students on knowledge and proficiency issues, professional development issues, difficulty with relationship and boundary issues with students, and difficulty supervising psychosocial counseling as not impactful. Previous research has focused on these topics as challenging aspects of supervision (Borders et al., 2006; Gu et al., 2011; Hendrickson et al., 2002; Pan et al., 2016). Nonetheless, the present results suggest they do not pose overt barriers to supervision.

STUDY LIMITATIONS

While the study has a representative demographic sample of certified genetic counselors, there is possible ascertainment bias, as individuals who feel strongly about the topic of supervision may have been more likely to complete a survey related to the topic. In addition, it is possible the barriers identified by Program Directors are real barriers perceived by practicing genetic counselors as well, but not the genetic counselors who participated in this study. Program Directors responded for their entire supervision network, while genetic counselors responded on barriers they perceived as individuals. In addition, the five barriers that were added to the CGC survey because they were raised in open ended response questions by Program Directors were not readdressed to the Program Director group, thus limiting comparisons. Finally, the participants' ratings of "impactful" neither allow for assessment of which barriers are "deal breakers" for a given individual, nor how the barriers

mutually interact to hinder participation in supervision and ultimately, limit expansion of supervision networks.

RESEARCH RECOMMENDATIONS

This study aimed to determine barriers to expanding the genetic counseling supervision network. While practicing counselors were asked to assess personal barriers, it may be helpful to explore the perceptions of the administration or direct supervisors of genetic counselors to gain better insight into the barriers perceived by the institution. Additional research on the current model of supervision, the potential to redefine the countable case, and the impact of an increasing number of genetic counseling training programs on the system, may be critical for ensuring genetic counselors meet the current and future workforce demands while retaining quality training.

CONCLUSION

The results of this study indicate that at least half of supervising genetic counselors are interested in increasing the amount of time they supervise genetic counseling students. Yet there are barriers preventing them from doing so, such as lack of time and balancing other responsibilities. Increasing the efficiency of genetic counselors in their day-to-day activities may increase their availability to train new students. In addition, the current model of supervision requires substantial time and dedication to each student; its intensive nature must be examined to determine whether there are more efficient ways to effectively train genetic counseling students. To bring new supervisors into the network, distance rotations or collaborative networks may be considered to help overcome institutional barriers. In addition, the training paradigm could expand to include individuals in laboratory, industry and telemedicine settings who are interested in supervising and have important experiences to offer. In order to alleviate the training bottleneck and expose students to future job options, there is a need to re-evaluate the definition of a countable case to allow more freedom to focus on these valuable experiences. As we train the next generation of genetic counselors and attempt to keep up with

the workforce demand, it is imperative that we are flexible and creative in order to be efficient, effective, and provide comprehensive experiences.

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APPENDIX

APPENDIX A

Program Director – Invitation to Participate:

Dear (insert Program Director name),

I am writing to you because you are the Program Director for the (insert training program name) Genetic Counseling Training Program. I believe that you will be able to provide a unique insight to the clinical supervision process. As a student, I recognize the importance of clinical experiences, and thus supervision, as a part of my training. As the genetic counseling community works towards expansion of our field as a whole, it is becoming more important to expand training opportunities.

For my Master of Science thesis project, I am interested in assessing the barriers to the expansion of supervision networks at ACGC accredited Genetic Counseling Training Programs. You are invited to take part in a research study called “Barriers to Expansion of Supervision Networks at Genetic Counseling Training Programs”. The purpose of this study is to assess the barriers to the expansion of supervision networks at genetic counseling training programs.

If you consent to participate in this study, you will complete a 15-20 minute survey via the online survey tool, Qualtrics, with the link provided below. Survey submissions will be anonymous and participation in this study is voluntary. Please limit participation to one submission per graduate training program. Responses from Program Directors will help inform a subsequent survey that will be sent to certified genetic counselors about the barriers that they perceive towards supervision.

This research project has been reviewed by the Committee for the Protection of Human Subjects (CPHS) of the University of Texas Health Science Center at Houston (HSC-MS-16-0444). This study is being conducted by M.S. Candidate Jordan Berg under the direction of Claire Singletary, M.S. CGC. Should you have any questions, please feel free to contact either at jordan.berg@uth.tmc.edu or claire.n.singletary@uth.tmc.edu.

[Click here to take the survey!](#)

Thank you for your time,

Jordan Berg
M.S. Degree Candidate
Genetic Counseling Intern II
University of Texas Graduate School of Biomedical Sciences
Genetic Counseling Program 2017

APPENDIX B

Certified Genetic Counselor – Invitation to Participate:

You are invited to take part in a research study called, “Barriers to the Expansion of Supervision Networks at Genetic Counseling Training Programs”, conducted by Jordan Berg, of the University of Texas Health Science Center at Houston.

The purpose of this study is to assess the barriers to the expansion of supervision networks at genetic counseling training programs. All board certified genetic counselors are encouraged to participate, including both current supervisors and those who do not currently supervise genetic counseling students.

If you consent to take part in this study you will complete a 10-15 minute survey via the online survey tool, Qualtrics, with the link provided below. All survey submissions will be anonymous. All participants who complete the survey will be given the choice to enter their email in a separate window to be entered into a drawing for one of two available \$25 Amazon gift cards. Email addresses submitted for the drawing will not be connected to the survey.

The information you provide will help us better understand the barriers towards the expansion of supervision networks at genetic counseling training programs in order to address the workforce issue within the field of genetic counseling. You may not receive any direct benefit from taking part in this study. The only possible risk may be breach of confidentiality; the information collected will not contain identifying information. You have the alternative to choose to not take part in this study and may withdraw at any time. There is no cost and you will not be paid to take part in this study. You will not be personally identified in any reports or publications that may result from this study. Any personal information about you that is gathered during this study will remain confidential to every extent of the law.

This research project has been reviewed by the Committee for the Protection of Human Subjects (CPHS) of the University of Texas Health Science Center at Houston (HSC-MS-16-0444). For any questions about research subjects rights call CPHS at (713) 500-7943. This study is being conducted by M.S. Candidate Jordan Berg under the direction of Claire Singletary, M.S. CGC. Should you have any questions, please feel free to contact either at jordan.berg@uth.tmc.edu or claire.n.singletary@uth.tmc.edu.

[Click here to take the survey!](#)

Thank you for your time,

Jordan Berg
M.S. Degree Candidate
Genetic Counseling Intern II
University of Texas Graduate School of Biomedical Sciences
Genetic Counseling Program 2017

APPENDIX C

Program Director – Survey:

Q1 I am the program director of an ACGC accredited genetic counseling program in:

- United States (1)
- Canada (2)
- N/A (3)

Q2 How many students graduated in the class of 2016?

Q3 How many students are currently enrolled in the graduating class of 2017?

Q4 How many students were accepted in the graduating class of 2018?

Q5 When do students start rotations?

- First year - fall (1)
- First year - spring (2)
- Summer - between 1st and 2nd year (3)
- Second year - fall (4)
- Second year - spring (5)
- Other (please specify) (6) _____

Q6 Do students stay in the city of your home institution for their summer rotation?

- No, none (1)
- Yes, some (2)
- Yes, all (3)
- Other (please specify) (4) _____

Q7 How many total clinical encounters (countable + noncountable cases) do students typically have in their portfolio when they graduate?

- 50-99 (1)
- 100-150 (2)
- 151-200 (3)
- >200 (4)

Complete the following 5 questions for your most recent graduating cohort of students with respect to Core Cases (Logbook Eligible Cases) (comparable to ACGC report of current status):

Q8 What is the average total number of clinical encounters (countable cases)?

Q9 What is the average number of clinical encounters (countable cases) in general pediatrics?

Q10 What is the average number of clinical encounters (countable cases) in prenatal?

Q11 What is the average number of clinical encounters (countable cases) in cancer?

Q12 What is the average number of clinical encounters (countable cases) - other (adult/specialty)?

Q13 What is the average number of clinical encounters (countable cases) that you think the average student needs to achieve competency?

Q14 How many total clinic days do your students get over the course of their training?

Q15 How many total clinic days do you think the average student needs over the course of their training to achieve competency?

Q16 Briefly describe your clinical rotation set up for students (ie types, lengths, and numbers of rotations):

Q17 If you had unlimited access to supervisors/sites would you change your clinical rotation set up?

- Yes (1)
- No (2)

Q18 If you had unlimited access to supervisors/sites would you take more students?

- Yes (1)
- No (2)

Q19 What do you see as the major constraint on clinical rotation set up (check all that apply)?

- Location of sites (1)
- Number of sites (2)
- Number of supervisors (3)
- Other (please specify) (4) _____

Q20 How many different clinic sites did you place a student at in the 2015-2016 academic year (analogous to ACGC Standards Appendix D for Clinical Sites)?

Q21 How many of the clinic sites you listed in the previous question are within a 25 mile radius of your home institution?

Q22 How many total sites with certified genetic counselors (CGC), whether you use or do not use them, are within a 25 mile radius of your home institution?

Q23 Do you utilize sites that are farther than 25 miles away?

- Yes, non-routinely during academic year (1)
- Yes, non-routinely during summer only (2)
- Yes, routinely in academic year (3)
- Yes, summer only (4)
- No (5)
- Other (please specify) (6) _____

Q24 What is the total number of CGC supervisors you had access to in the 2015-2016 academic year, not including your summer sites?

Q25 How many total CGC supervisors have their primary affiliation (employee or faculty) with your program's home institution?

Q26 How many certified genetic counselors are within a 25 mile radius, but are not currently supervising?

Q27 Criteria set by your program for being a supervisor includes (check all that apply):

- Board certified - CGC (1)
- Favorable reviews (2)
- Not board certified, but a senior supervisor on site (3)
- One year out of school (4)
- Six months out of school (5)
- Other (please specify) (6) _____

Q28 On average, how many CGC supervisors do students work with on each rotation?

- 1 (1)
- 2-3 (2)
- 4-5 (3)
- 6-9 (4)
- 10+ (5)

Q29 How much do each of the following items impact your ability to expand your supervisor network (including utilizing current supervisors more & adding new supervisors)

	Not Impactful (1)	Somewhat impactful (2)	Impactful (3)	Very Impactful (4)	N/A (5)
Lack of money (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of time (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of access to supervision training (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of supervision competencies (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of support from clinic site administration (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Institutional barriers (legal, hospital credentials, direct management rules, etc.) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficult to get affiliation agreements (or memorandum of agreement) with sites (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not enough patient volume (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Too heavy patient volume (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scheduling difficulties (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supervisor difficulty working with students on knowledge and proficiency issues (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Supervisor difficulty working with students on professional development issues (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supervisor difficulty with relationship and boundary issues with students (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supervisor difficulty supervising psychosocial counseling (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supervisor burnout (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supervisors miss counseling on their own (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supervisors are worried about compromising the care of patients (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supervisor left site and was not replaced (18)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GCs are balancing too many other responsibilities (19)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GCs are teaching other students (med students, etc.) (20)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GCs are not able to be utilized based on prior feedback (21)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GCs are inconsistent in availability to take a student (22)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GCs prefer not to supervise (23)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GCs have never been asked to supervise (24)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GCs prefer to contribute to the profession in a different capacity (25)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GCs available are in industry and thus cases are not countable (26)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GCs available are lab counselors and thus cases are not countable (27)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GCs available use telemedicine and thus not enough cases are countable (28)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GCs available are not far enough out of school (29)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional GCs I have access to are too far away to send students frequently (30)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q30 What are other barriers to expanding your supervision network?

Q31 What do you see as the most pressing issue for your program:

- Adding new supervisors to network (1)
- Better utilizing current supervisors (2)
- All of the above (3)
- None of the above (4)

Q32 List the top 3 barriers to increasing the utilization of current supervisors within your program:

- 1.
- 2.
- 3.

Q33 List the top 3 barriers to adding new supervisors to your program's supervision network:

- 1.
- 2.
- 3.

Q34 Any additional thoughts on barriers to supervision that you would like to see a survey of supervisors and potential supervisors explore?

APPENDIX D

Certified Genetic Counselor – Survey:

Q1 Are you a board certified genetic counselor?

- Yes - ABGC or ABMG (1)
- Yes - CAGC (2)
- No, but I am board eligible (3)
- No, I am currently a student (4)
- No (5)

Q2 What year were you initially certified as a genetic counselor?

- Dropdown list 1971-2016

Q3 What is your gender?

- Female (1)
- Male (2)
- Prefer not to respond (3)

Q4 What is your ethnicity?

- American Indian or Alaskan Native (1)
- Asian (2)
- Asian Indian (3)
- Black or African American (4)
- Caucasian (5)
- Native Hawaiian or Other Pacific Islander (6)
- Other (please specify): (7) _____
- Prefer not to respond (8)

Q5 What US state or Canadian Territory do you currently live in?

- Dropdown list US States & Canadian Territories

Q6 What is your primary job classification currently?

- Account Executive (1)
- Assistant Director (2)
- Clinical Coordinator (3)
- Director/Clinical Director/Executive Director (4)
- Genetic Associate (5)
- Genetic Consultant (6)
- Genetic Counselor (7)
- Genetic Services Manager (8)
- Genetic Specialist/Medical Specialist (9)
- Genetic Counseling Training Program Assistant Director (10)
- Genetic Counseling Training Program Director (11)
- Laboratory Counselor/Coordinator/Support (12)
- Medical Science Liaison (13)

- Manager (other) (14)
- Marketing Manager (15)
- Patient Care Liaison (16)
- Product Manager/Product Specialist (17)
- Professor/Instructor/Lecturer/Assistant Professor/Associate Professor (18)
- Project Manager/Project Director (19)
- Public Health Worker (incl. State Genetic Coordinators) (20)
- Research Scientist/Assistant/Associate (21)
- Research/Study Coordinator (22)
- Senior Genetic Counselor/Supervisor/Coordinator (23)
- Other (24) _____

Q7 What is the primary specialty area in which you work in?

- Administration (1)
- Adult (including complex disease) (2)
- Cancer Genetics (3)
- Cardiology (4)
- Education; Public or Professional (5)
- General Genetics (6)
- Genetic Testing (7)
- Genomic Medicine (8)
- Laboratory (9)
- Molecular/Cytogenetics/Biochemical Testing (10)
- Pediatric (11)
- Prenatal (12)
- Research (13)
- Other (14) _____

Q8 How close is the nearest genetic counseling training program to your current position?

- 0-25 miles (1)
- 26-50 miles (2)
- 51-75 miles (3)
- 76-100 miles (4)
- >100 miles (5)

Q9 Have you ever had any prospective students shadow you?

- Yes (1)
- No (2)

Q10 Have you ever participated in a supervision workshop?

- Yes (1)
- No (2)

Q11 When was the most recent time you supervised a genetic counseling student?

- Currently (within the last year) (1)
- 1-2 years ago (2)

- 2 years ago (3)
- Never (4)

→CURRENT SUPERVISOR LEG (If answered 1 or 2 to question 11)

Q12 How many genetic counseling students did you supervise during the 2015-2016 academic school year (not including summer)?

- Dropdown list 0-70

Q13 How many genetic counseling students did you supervise during the 2016 summer?

- Dropdown list 0-70

Q14 From how many different genetic counseling programs did you supervise students during the 2015-2016 academic school year (not including summer)?

- Dropdown list 0-35

Q15 From how many different genetic counseling programs did you supervise students during the 2016 summer?

- Dropdown list 0-35

Q16 How many weeks per year do you typically supervise a genetic counseling student?

- Dropdown list 0-52

Q17 How many cases per week do you typically supervise a genetic counseling student?

- Dropdown list 0-50

Q18 How many cases per week do you typically see, with or without a genetic counseling student?

- Dropdown list 0-50

Q19 What percentage of your clinic time do you supervise a student?

_____ % of time in clinic supervising a student (1)

Q20 Would you be willing to take a student a larger percentage of your clinic time?

Yes (1)

No (2)

Q21 What would be the ideal percentage of time in clinic to supervise a student?

_____ Ideal % of time in clinic supervising a student (1)

Q22 How many years of genetic counseling supervision experience do you have? (if less than one year, please put "1")

- Dropdown list 1-50

Q23 Are you affiliated with an institution that has a genetic counseling training program?

- Yes (1)

- No (2)

Q24 Are you required to supervise as a part of your position?

- Yes (1)
- No (2)

Q25 Any additional information or clarification about your supervisor role is welcome:

Q26 How impactful do you think each of the following factors is on limiting your ability to expand your current supervisor role (take more students or spend more time with students):

	Not Impactful (1)	Somewhat Impactful (2)	Impactful (3)	Very Impactful (4)	N/A (5)
Lack of money (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of time (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of access to supervision training (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of written supervision competencies (list of skills/requirements) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of support from clinic site administration (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Institutional barriers (legal, hospital credentials, direct management rules, etc.) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficult to secure affiliation agreements (or memorandum of understanding) with programs (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not enough patient volume (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Too heavy patient volume (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scheduling difficulties (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficulty working with students on knowledge and proficiency issues (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficulty working with students on professional development issues (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficulty with relationship and boundary issues with students (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficulty supervising psychosocial counseling (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supervisor burn out (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Miss counseling on my own (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worried about compromising the care of patients (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used to supervise until left site (18)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Balancing too many other responsibilities (19)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Teach other students (med students, etc.) (20)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilized less by program to supervise based on prior negative feedback (21)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unable to consistently take a student (22)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prefer not to supervise (23)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Never been asked to supervise more (24)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prefer to contribute to the profession in a different capacity (25)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work in industry and thus cases are not countable (26)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work as a lab counselor and thus cases are not countable (27)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work in telemedicine and thus not enough cases are countable (28)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not far enough out of school (29)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Too far away from a program to take students frequently (30)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Open/ unfilled genetic counseling positions at my institution (31)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased requests from multiple programs to supervise (32)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Desire to have breaks throughout the year (33)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intensive nature of supervision process (34)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of confidence in supervision (35)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q27 What are other barriers to expanding your supervision roles?

Q28 Any additional comments about supervision are welcome:

→NON SUPERVISOR LEG (If answered 3 or 4 to question 11)

Q29 Have you ever been a supervisor for genetic counseling students before?

- No (1)
- Yes - during the school year (2)
- Yes - during the summer (3)
- Yes - during both the school year and summer (4)
- Yes - other (please specify): (5) _____

Q30 If you have never supervised genetic counseling students before, why not? (check all that apply)

- N/A - I have been a supervisor before (1)

- Do not meet eligibility requirements set by program for supervising (2)
- Never been asked (3)
- New graduate (4)
- Not near a program (5)
- Not interested in supervising (6)
- Types of cases I see do not count toward ACGC logbooks (ex: industry or lab) (7)
- Other (please specify): (8) _____

Q31 If you have ever been a supervisor before, what has changed that you are not currently supervising? (check all that apply)

- N/A - never been a supervisor (1)
- Changed jobs, cases no longer countable (ex: industry or lab) (2)
- Changed jobs, moved away from genetic counseling training program (3)
- Changed jobs, other (please specify): (4) _____
- Negative experiences (5)
- Not currently working as a genetic counselor (6)
- Program I am near does not use me as a supervisor regularly (7)
- Same job, new administration/regulation (8)
- Same job, unfilled genetic counseling positions leave me without time to supervise (9)
- Same job, other (please specify): (10) _____
- Other (please specify): (11) _____

Q32 In which of the following situations would you be willing to supervise? (check all that apply)

- After I have more years of experience as a CGC (1)
- During the summer (2)
- During school year (3)
- If a genetic counseling program opened nearby (4)
- Not at this current position, but if I changed jobs later (5)
- Never (6)
- Other (please specify): (7) _____

Q33 Any additional information or clarification is welcome:

Q34 How impactful do you think each of the following factors is on limiting your ability to become a supervisor at a genetic counseling training program:

	Not Impactful (1)	Somewhat Impactful (2)	Impactful (3)	Very Impactful (4)	N/A (5)
Lack of money (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of time (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of access to supervision training (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of written supervision competencies (list of skills/requirements) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of support from clinic site administration (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Institutional barriers (legal, hospital credentials, direct management rules, etc.) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficult to secure affiliation agreements (or memorandum of understanding) with programs (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not enough patient volume (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Too heavy patient volume (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scheduling difficulties (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficulty working with students on knowledge and proficiency issues (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficulty working with students on professional development issues (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficulty with relationship and boundary issues with students (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficulty supervising psychosocial counseling (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supervisor burn out (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Would miss counseling on my own (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worried about compromising care of patients (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used to supervise until left site (18)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Balancing too many other responsibilities (19)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teach other students (med student, etc.) (20)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not able to be utilized based on prior negative feedback (21)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unable to consistently take a student (22)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prefer not to supervise (23)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Never been asked to supervise (24)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prefer to contribute to the profession in a different capacity (25)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work in industry and thus cases are not countable (26)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work as a lab counselor and thus cases are not countable (27)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work in telemedicine and thus not enough cases are countable (28)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not far enough out of school (29)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Too far away from a program to take students frequently (30)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Open/ unfilled genetic counseling positions at my institution (31)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Increased requests from multiple programs to supervise (32)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Desire to have breaks throughout the year (33)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intensive nature of supervision process (34)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of confidence in supervision (35)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q35 What are other barriers to becoming a genetic counseling supervisor?

Q36 Any additional comments about supervision are welcome:

APPENDIX E

Barriers to Supervision: Likert Scale Responses

Table 1. Barriers to Supervision: Likert Scale Responses

	Supervisors (n=216)					Non-Supervisors (n=98)					Program Directors (n=23)				
	VI	I	SI	NI	NA	VI	I	SI	NI	NA	VI	I	SI	NI	NA
	n (%)														
Lack of time	114 (53)	53 (25)	28 (13)	15 (7)	6 (3)	32 (33)	22 (22)	28 (29)	13 (13)	3 (3)	3 (13)	6 (26)	9 (39)	4 (17)	1 (4)
Other responsibilities	64 (30)	66 (31)	57 (26)	25 (12)	4 (2)	17 (17)	29 (30)	26 (27)	21 (21)	5 (5)	8 (35)	9 (39)	4 (17)	1 (4)	1 (4)
Intensive nature*	38 (18)	55 (25)	58 (27)	59 (27)	6 (3)	11 (11)	19 (19)	32 (33)	27 (28)	9 (9)	-	-	-	-	-
Desire breaks*	40 (19)	42 (19)	63 (29)	62 (29)	9 (4)	6 (6)	15 (15)	17 (17)	42 (43)	18 (18)	-	-	-	-	-
Unfilled positions*	31 (14)	35 (16)	37 (17)	65 (30)	48 (22)	12 (12)	13 (13)	13 (13)	30 (31)	30 (31)	-	-	-	-	-
Heavy patient volume	33 (15)	42 (19)	55 (25)	67 (31)	19 (9)	18 (18)	13 (13)	14 (14)	37 (38)	16 (16)	4 (17)	2 (9)	11 (48)	5 (22)	1 (4)
Supervisor burnout	20 (9)	59 (27)	66 (31)	64 (30)	7 (3)	7 (7)	12 (12)	21 (21)	42 (43)	16 (16)	5 (22)	6 (26)	7 (30)	2 (9)	3 (13)
Scheduling difficulties	19 (9)	52 (24)	66 (31)	66 (31)	13 (6)	6 (6)	17 (17)	29 (30)	31 (32)	15 (15)	2 (9)	4 (17)	10 (43)	6 (26)	1 (4)
Never been asked	23 (11)	27 (13)	23 (11)	75 (35)	68 (31)	23 (23)	26 (27)	8 (8)	18 (18)	23 (23)	0 (0)	0 (0)	2 (9)	14 (61)	7 (30)
Other students	20 (9)	40 (19)	58 (27)	66 (31)	32 (14)	2 (2)	6 (6)	24 (24)	26 (27)	40 (41)	5 (22)	9 (39)	7 (30)	1 (4)	1 (4)
Institutional barriers	19 (9)	39 (18)	61 (28)	87 (40)	10 (5)	30 (31)	15 (15)	21 (21)	20 (20)	12 (12)	1 (4)	6 (26)	5 (22)	8 (35)	3 (13)
Too far away	25 (12)	19 (9)	21 (10)	90 (42)	61 (28)	21 (21)	20 (20)	17 (17)	22 (22)	18 (18)	5 (22)	7 (30)	3 (13)	6 (26)	2 (9)
Administration	21 (10)	30 (14)	58 (27)	93 (43)	14 (6)	20 (20)	15 (15)	18 (18)	27 (28)	18 (18)	4 (17)	5 (22)	8 (35)	4 (17)	2 (9)
Miss counseling on own	21 (10)	48 (22)	65 (30)	66 (31)	16 (7)	6 (6)	17 (17)	24 (24)	37 (38)	14 (14)	1 (4)	6 (26)	3 (13)	11 (48)	2 (9)
Inconsistent	19 (9)	23 (11)	46 (21)	96 (44)	32 (15)	7 (7)	8 (8)	24 (24)	36 (37)	23 (23)	4 (17)	3 (13)	9 (39)	6 (26)	1 (4)
Compromise care	16 (7)	30 (14)	72 (33)	87 (40)	11 (5)	5 (5)	15 (15)	28 (29)	41 (42)	9 (9)	1 (4)	2 (9)	8 (35)	11 (48)	1 (4)
Industry	16 (7)	4 (2)	1 (1)	72 (33)	123 (57)	13 (13)	4 (4)	1 (1)	18 (18)	62 (63)	4 (17)	5 (22)	6 (26)	6 (26)	2 (9)

NI = not impactful, SI = somewhat impactful, I = very impactful, VI = very impactful, NA = not applicable
 * Barriers only addressed in CGC survey

Table 1. Barriers to Supervision: Likert Scale Responses (Continued)

	Supervisors (n=216)					Non-Supervisors (n=98)					Program Directors (n=23)				
	VI	I	SI	NI	NA	VI	I	SI	NI	NA	VI	I	SI	NI	NA
	n (%)					n (%)					n (%)				
Affiliation agreements	17 (8)	24 (11)	52 (24)	104 (48)	19 (9)	15 (15)	15 (15)	19 (19)	29 (30)	20 (20)	2 (9)	4 (17)	6 (26)	9 (39)	2 (9)
Lab counselor	16 (7)	4 (2)	6 (3)	71 (33)	119 (55)	16 (16)	2 (2)	2 (2)	16 (16)	62 (63)	4 (17)	3 (13)	7 (30)	8 (35)	1 (4)
Leaves not replaced	15 (7)	3 (1)	3 (1)	73 (34)	122 (56)	8 (8)	4 (4)	1 (1)	17 (17)	68 (69)	8 (35)	7 (30)	2 (9)	4 (17)	2 (9)
Multiple requests*	11 (5)	19 (9)	35 (16)	103 (48)	48 (22)	4 (4)	5 (5)	13 (13)	39 (40)	37 (38)	-	-	-	-	-
Lack of money	10 (5)	23 (11)	40 (19)	127 (59)	16 (7)	5 (5)	7 (7)	18 (18)	57 (58)	11 (11)	3 (13)	5 (22)	8 (35)	5 (22)	2 (9)
Lack of training	6 (3)	29 (13)	57 (26)	112 (52)	12 (6)	9 (9)	28 (29)	20 (20)	33 (34)	8 (8)	0 (0)	0 (0)	4 (17)	17 (74)	2 (9)
Student knowledge	3 (1)	23 (11)	48 (22)	133 (62)	9 (4)	1 (1)	7 (7)	17 (17)	62 (63)	11 (11)	0 (0)	1 (4)	4 (17)	16 (70)	2 (9)
Lack of competencies	7 (3)	17 (8)	45 (21)	136 (63)	11 (5)	6 (6)	16 (16)	25 (26)	38 (39)	13 (13)	0 (0)	0 (0)	3 (13)	17 (74)	3 (13)
Low patient volume	13 (6)	11 (5)	38 (18)	132 (61)	22 (10)	11 (11)	7 (7)	13 (13)	52 (53)	15 (15)	1 (4)	3 (13)	7 (30)	11 (48)	1 (4)
Different contribution	4 (2)	15 (7)	25 (12)	134 (62)	38 (18)	5 (5)	7 (7)	10 (10)	54 (55)	22 (22)	0 (0)	0 (0)	4 (17)	16 (70)	3 (13)
Lack of confidence*	7 (3)	12 (6)	50 (23)	134 (62)	13 (6)	8 (8)	12 (12)	29 (30)	35 (36)	14 (14)	-	-	-	-	-
Student professional	2 (1)	14 (6)	47 (22)	143 (66)	10 (5)	2 (2)	4 (4)	20 (20)	62 (63)	10 (10)	0 (0)	1 (4)	6 (26)	14 (61)	2 (9)
Telemedicine	4 (2)	3 (1)	8 (4)	72 (33)	129 (60)	10 (10)	3 (3)	1 (1)	18 (18)	66 (67)	2 (9)	4 (17)	5 (22)	8 (35)	4 (17)
Psychosocial supervision	3 (1)	10 (5)	46 (21)	141 (65)	16 (7)	1 (1)	8 (8)	18 (18)	61 (62)	10 (10)	0 (0)	1 (4)	6 (26)	14 (61)	2 (9)
Prefer not to supervise	6 (3)	5 (2)	26 (12)	131 (61)	48 (22)	6 (6)	3 (3)	9 (9)	51 (52)	29 (30)	2 (9)	4 (17)	8 (35)	8 (35)	1 (4)
Not far out of school	3 (1)	8 (4)	26 (12)	111 (51)	68 (31)	14 (14)	9 (9)	19 (19)	37 (38)	19 (19)	0 (0)	4 (17)	8 (35)	9 (39)	2 (9)
Boundary issues	3 (1)	5 (2)	28 (13)	172 (80)	8 (4)	0 (0)	4 (4)	11 (11)	73 (74)	10 (10)	0 (0)	2 (9)	3 (13)	16 (70)	2 (9)
Prior negative feedback	1 (1)	1 (1)	5 (2)	106 (49)	103 (47)	67 (68)	1 (1)	3 (3)	26 (27)	1 (1)	0 (0)	1 (4)	5 (22)	16 (70)	1 (4)

NI = not impactful, SI = somewhat impactful, I = very impactful, VI = very impactful, NA = not applicable

* Barriers only addressed in CGC survey

VITA

Jordan Elaine Berg was born in West Palm Beach, Florida on October 25, 1992, the daughter of William Lee Berg and Kristi Kay Berg. After completing her work at Milton High School, Milton, Georgia in 2011, she entered the University of Georgia in Athens, Georgia. She received the degree of Bachelor of Arts with majors in Biology and Genetics from University of Georgia in May, 2015. In August of 2015 she entered the University of Texas MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences.

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