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Genetic Counselor's Attitudes Toward Continuing Education Options

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Abstract

With various aspects of contemporary clinical practice and the rapidly growing field of genomic medicine, genetic counselors are responsible for meeting ever-changing demands of providing up-to-date healthcare services. Continuing education and recertification play a significant role in this process. This study assessed genetic counselors' attitudes towards continuing education options. A web-based survey was sent to NSGC members resulting in 358 responses. Respondents rated current continuing education options as "mildly convenient" and "mildly transferable" to daily practice. The three continuing education options can be ranked according to convenience, from most to least, as follows: Category 1; PACs; Category 2. The options can also be ranked from most transferable to least transferable as follows: Category 1; PACs; Category 2.

Open-ended responses showed recurrent themes across all credit types including process feedback and content feedback such as convenience, usefulness, and challenges. Another important theme was an underlying lack of knowledge surrounding continuing education options and processes. Providing more accessible information on continuing education options, cost management, and content review were identified as potential mechanisms for supporting effective continuing education.

These findings are the first step towards verifying that genetic counselors believe efficient and effective continuing education is available and applicable to their work. We would encourage future research to investigate the impact of continuing education on genetic counselor's competence and expertise. Potential topics for future investigation include long-term cost management of continuing education fees and efficacy of current options, with a focus on conference-based learning.

Keywords: Genetic Counseling, Continuing Education, Professional advancement, Professional development, healthcare, recertification, education transferability, on-the-job learning,

Introduction

The Profession of Genetic Counseling and Continuing Education

The National Society of Genetic Counselors (NSGC) defines the practice of genetic counseling as “the process of helping people understand and adapt to the medical, psychological, and familial implications of genetic contributions to disease” (Resta et al., 2006). With various aspects of contemporary clinical practice and the rapidly growing field of genomic medicine, genetic counselors are responsible for meeting ever-changing demands of providing up-to-date healthcare services. Through the American Board of Genetic Counseling (ABGC), it is expected that each graduate “can demonstrate initiative for continued professional growth... displays a knowledge of current standards of practice and shows independent knowledge-seeking behavior and lifelong learning” (Accreditation Council for Genetic Counseling, 2015). In order for genetic counselors to meet these expectations, efficient and effective continuing education is required.

Continuing education in genetic counseling is most directly reflected in requirements of recertification to maintain the credentials necessary to practice. Recertification plays a significant role in a genetic counselor’s career in regards to licensing, professional advancement, hospital credentialing, and insurance reimbursement (Accreditation Council for Genetic Counseling, 2015). Establishing set criteria that demonstrate the importance and efficacy of continued learning in the field is crucial. In order for a learning-based activity to be credited as continuing education for the purposes of credentialing, the activity must: exhibit topics relevant to genetic counseling practice; introduce the most current scientific evidence within clinical practice and education; and revisit and develop the core competencies of the genetic counseling profession (American Board of Genetic Counseling).

Continuing Education in Genetic Counseling

The established recertification process for genetic counselors as set by ABGC can be achieved through one of two ways: retaking the board examination or accumulating a set number of continuing education units (CEUs). While no statistics were available, anecdotal evidence suggests the most utilized option is accumulation of CEUs. By choosing this option and completing a variety of learning-based activities, the ultimate goal is to improve practice-based outcomes and patient health outcomes (Continuing Education, Professional Development, and Lifelong Learning for the 21st Century Health Care Workforce, 2011).

ABGC requires a total of 25 CEUs for those certified between 1999-2009 holding a ten-year certificate and a total of 12.5 CEUs for those certified/recertified from 2010 or later holding a five-year certificate. There are three categories of CEUs: Category 1 are credits that are pre-approved by ABGC that are specifically geared towards genetic counseling; Category 2 are not directly specified to genetic counseling, but have relevant content for continued education in the field; and PACs are credits earned through participation in activities such as clinical supervision, publication or presentation, and genetics education or outreach. As the authorized provider of CEUs for genetic counselors, the National Society of Genetic Counselors (NSGC) keeps an up-to-date list of approved continuing education options on their website. Each CEU claim requires verification or evaluation in order to ensure that individuals are meeting learning objectives. Once the required amount of CEUs have been completed, an application is submitted to ABGC for recertification.

Beyond its role in recertification, continuing education supports lifelong learning and upkeep of professional knowledge and skills and can take many forms. One area of continuing education that has been studied in genetic counseling is the role of advanced degrees, either as

potential development of more genetic counseling PhD programs or advanced degrees in other disciplines. At least four separate studies have investigated interest in this option (Gaupman et al., 1991, Bedard et al., 2007, Atzinger et al., 2007, Wallace, et al., 2007). Each investigation indicated positive attitudes towards genetic counselors having doctoral degrees. Despite these results, only one PhD program currently exists specifically aimed towards genetic counseling. Genetic counselors are obtaining doctoral degrees in other associated fields to achieve personal and professional goals (Bedard et al., 2007).

Methods

In the fall of 2017, we conducted a cross-sectional study of continuing education in genetic counseling by surveying members of the National Society of Genetic Counselors (NSGC). Our goal was to reach the maximum amount of genetic counselors participating in continuing education and this was deemed best facilitated by using the NSGC membership listserv. The study was approved by the Sarah Lawrence College Institutional Review Board. An email invitation and web link to our survey were sent to all members subscribed to NSGC's listserv. A follow-up reminder to participate was sent out two weeks following the first invitation. Responses were collected for three weeks starting November 20, 2017 and ending on December 11, 2017. By completing and submitting the survey, subjects indicated their consent to participate.

We developed a self-reported, web-based questionnaire using the SurveyMonkey platform. The survey was divided into subparts including a demographic inventory, separate pages to assess opinions on the three types of CEU options, and an additional comments section. The demographic inventory queried years in practice as a genetic counselor, length of certification, preferred learning style, work setting, NSGC region, and ranking of most used CEU

category. Targeted questions for Category 1 CEUs included frequency of usage, convenience, most utilized option, and transferability of obtained knowledge into daily practice as well as an open-ended comment box. The Category 2 CEU section consisted of frequency of usage, convenience, transferability of obtained knowledge into daily practice, in addition to an open-ended comment box. The PAC section also examined frequency of usage, options utilized, and transferability of obtained knowledge into daily practice as well as an open-ended comment box. A copy of the survey can be found in supplemental information.

Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) system for Windows, version 23.0. Descriptive statistics were computed for relevant items. Chi-square analysis and single sample t-tests were used to examine interactions between key variables to determine the statistical significance of differences between groups based on demographics. Qualitative responses from open-ended questions were subjected to open and axial coding to inform reporting of key themes.

Findings

Three hundred and fifty eight responses were collected. Responses with less than two questions answered were omitted (a total of 40 responses); therefore 318 responses were used in this analysis. The largest group of responders (37%) had 1-4 years of experience working as a genetic counselor. Most respondents (81%) have a five-year certification and the rest (17%) have a ten-year certification.

Figure 1: Years As a Practicing Genetic Counselor

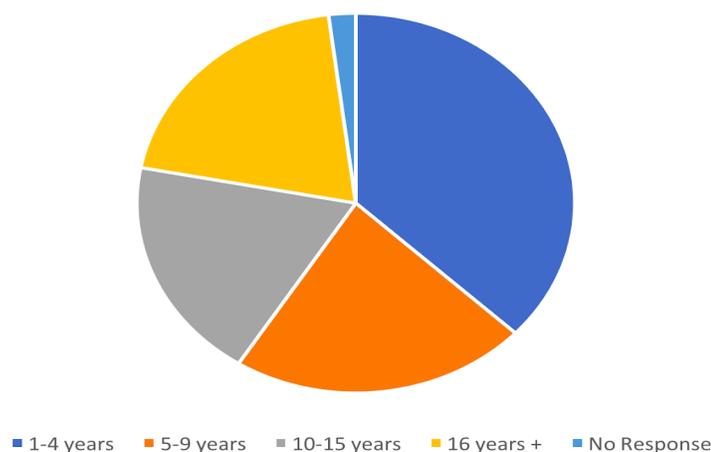


Figure I: Years as a Practicing Genetic Counselor

Responses were collected from genetic counselors working in all NSGC regions. Region 4 was the most represented with 24.7% of respondents. No one region had a larger or smaller response rate than expected. Responses to “Other Country” included various locations in Canada (77%) and remote positions with no set location (15%).

Respondents were asked to rank the continuing education options from most used to least used. Category 1 was chosen as the “most used” option 94.5% of the time followed by Category 2 and PACs both with 2.3% and retaking the boards at 0.93%. Retaking the board exams was chosen as “least used” 99.07% of the time.

Category 1 CEUs

Respondents were asked to state the frequency with which they use Category 1 CEUs. The most commonly reported frequency was every few months (48.9%), followed by yearly (31.3%), monthly (16.6%), every other year (2.8%) and once every five years (0.5%).

Respondents were asked to rank convenience of obtaining Category 1 CEUs on a Likert scale from 1 (least convenient) to 5 (most convenient). Average convenience rating was 4.0, which was equivalent to “more convenient”.

Respondents were asked to choose the Category 1 option they used most frequently. Attending in-person conference sessions was the most frequently used options (64.1%), followed by participating in online webinars (24.4%), completing online courses (5.1%), reviewing conference recordings online (3.7%), attending workshops (2.3%), and participating in the Journal of Genetic Counseling CEU program (0.5%).

Respondents were asked to rank the extent to which they believe the knowledge and skills gained from Category 1 CEUs transferred to daily practice (transferability) on a Likert scale from 1 (least) to 5 (most). Average transferability was 3.03, which was equivalent to a response of “moderate extent”.

Category 2 CEUs

Respondents were asked to state the frequency with which they use Category 2 CEUs. The most common frequency of use was once every five years (29.2%) followed by yearly (25.6%), every other year (23.6%), every few months (14.4%), and monthly (7.2%).

Respondents were asked to rank convenience of obtaining Category 2 CEUs on a Likert scale from 1 (least convenient) to 5 (most convenient). Average convenience was 2.73, which was equivalent to “less convenient”.

Respondents were asked to rank the transferability of Category 2 CEUs on a Likert scale from 1 (least convenient) to 5 (most convenient). Average transferability was 2.55, which was equivalent to a “slight extent”.

Professional Activity Credits (PACs)

Respondents were asked to state the frequency of PAC use. The most commonly cited frequency was yearly (35.8%) followed by once every five years (23.9%), every few months (20.6%), every other year (11.5%), and monthly (8.3%).

Respondents were asked to rank convenience of obtaining PACs on a Likert scale from 1 (least convenient) to 5 (most convenient). Average convenience was 3.27, which was equivalent to convenient.

Respondents were asked to choose all approved PAC options they have participated in. Of these approved options, clinical supervision was the most used (56.6%) followed closely by presentations (56.1%) and publication (49.3%). All other options and their participation rates can be seen in the table below.

PAC Option	Participation Rate
Clinical Supervision	56.6%
Presentations	56.1%
Publication	49.3%
Teaching	36.6%
Genetics Education Outreach	28.8%
Peer Review of Manuscripts	20%
Leadership Activities in a genetics related organization	18.1%
Volunteer Services for a genetics related organization	13.2%
Patient Education Publication	10.7%
Volunteer at a chronic disease event	7.3%

Peer supervision groups	6.8%
Undergraduate or Graduate coursework	6.3%
Other	3.9%
Non-peer reviewed publication	3.4%

Table I: Participation rate of PACs used by Genetic Counselors

Respondents were asked to rank the transferability of PACs on a Likert scale from 1 (least) to 5 (most). Average transferability was 2.75, which was equivalent to “slightly transferable”.

	Frequency of Use	Average Convenience	Average Transferability
CAT1	Every Few Months (48.9%)	More Convenient (4.00)	Moderate Extent (3.03)
CAT2	Once Every 5 Years (29.2%)	Less Convenient (2.73)	Slight Extent (2.55)
PAC	Yearly (35.8%)	Convenient (3.27)	Slight Extent (2.75)

Table II: Data obtained on the frequency, convenience and transferability of each continuing education option.

Comparisons of Category 1, Category 2 and PAC Data**Convenience.**

Respondents were asked to state how convenient they felt each CEU option was on a scale from 1 (least convenient) to 5 (most convenient). Mean convenience was reported as follows: Category 1, $m=4.05$, $SD=1.61$; Category 2, $m=2.71$, $SD=1.83$; PACs, $m=3.26$, $SD=1.28$. Using single sample t-tests, we found statistically significant differences between reported convenience of Category 1 and Category 2 ($t=12.59$, $p<0.001$), Category 1 and PACs ($t=5.73$, $p<0.001$), and Category 2 and PACs ($t=-4.09$, $p<0.001$). The options can be ranked according to convenience, from most to least, as follows: Category 1; PACs; Category 2.

Transferability.

Respondents were asked to rank on a Likert scale how transferable the learning resulting from each option was to their daily work. Mean transferability was reported as follows: Category 1, $m=3.03$ $SD=0.70$; Category 2, $m=2.75$ $SD=0.80$; PACs, $m=2.73$ $SD=0.89$. Using single sample t-tests, we found statistically significant differences between reported transferability of Category 1 and Category 2 ($t=7.32$, $p<0.001$), Category 1 and PACs ($t=4.04$, $p<0.001$), and Category 2 and PACs ($t=-2.72$, $p<0.001$). The options can be ranked according to transferability from most to least as follows: Category 1; PACs; Category 2.

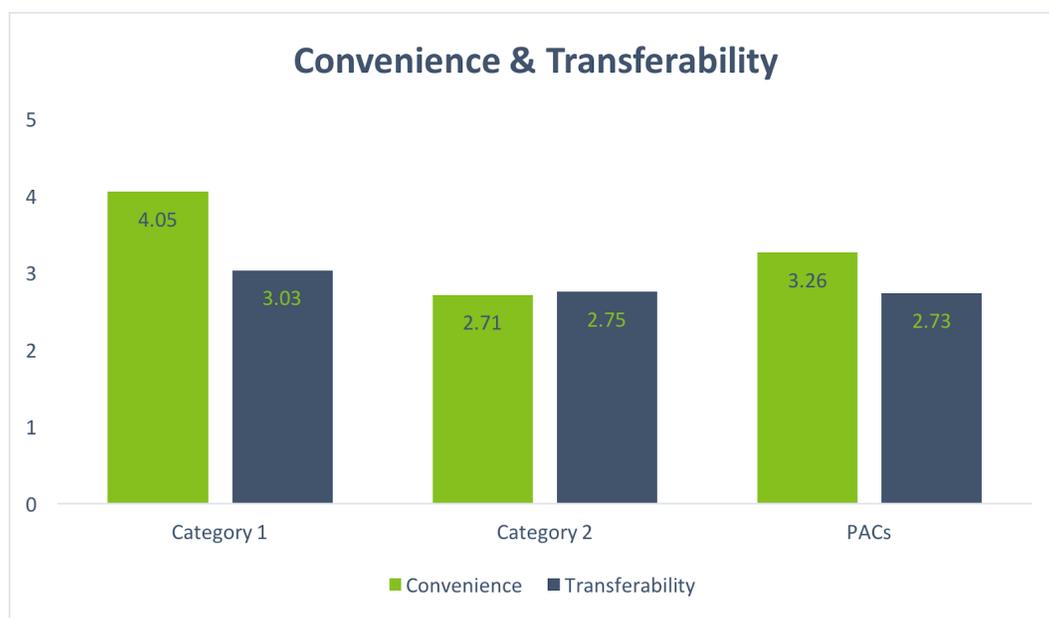


Figure II: Analysis of the convenience and transferability of each continuing education option

Frequency.

Respondents were asked to state how frequently they used each option. Category 1 CEUs are required and therefore used by all respondents. The majority of respondents (48.8%) said they used them once every few months. PACs were used by 68.6% of respondents with most (35.8%) stating they used them approximately once every year. Category 2 CEUs were used by 61.3% of respondents with most (29.3%) stating they used them approximately once every 5 years.

Convenience and Transferability

We assessed the correlation between perceived transferability and perceived convenience. A positive correlation between transferability and convenience was found for all three credit categories. The strongest correlation was found with PACs ($r=0.45$ $p<.001$). Category 1 and Category 2 had lower, but still positive, correlations ($r=0.20$ $p<.01$, $p=$ and $r=0.21$ $p<.01$).

Transferability and Frequency

We assessed potential correlation between perceived transferability and frequency of use for each credit category. Statistically significant positive correlations were found in all three options. The strongest positive correlation was found in PACs ($r=.52$, $p <.001$). Category 2 and Category 1 had lower positive correlations ($r= 0.23$, $p<0.01$; $r=.21$, $p<0.001$).

Qualitative themes

The survey included a total of four open-ended questions, responses to which were subjected to qualitative analysis. A comment box was included at the end of each credit category section to encourage respondents to share additional thoughts regarding Category 1, Category 2, and PACs separately. The fourth open-ended question was a comment box at the end of the survey to give respondents an opportunity to voice any ideas not addressed through the previous questions.

The number of responses varied among the four open-ended questions with the highest number of responses for Category 2 CEUs (74), followed by Category 1 CEUs (63), PACs (47), and general comments (30). All comments were read and potential themes were listed for each question. All comments were then reread to code each complete thought into the identified themes; each response could be sorted into a maximum of two themes. For instance, one comment may have included two separate thoughts and was therefore categorized into two separate themes. Percentages were calculated by dividing the total amount of comments on a particular theme by the total number of open-ended responses for each open-ended question (i.e. 47 commented on Category 2 CEUs being “challenging”, which was divided by the total number of responses, $n=74$, which would be 63.5%).

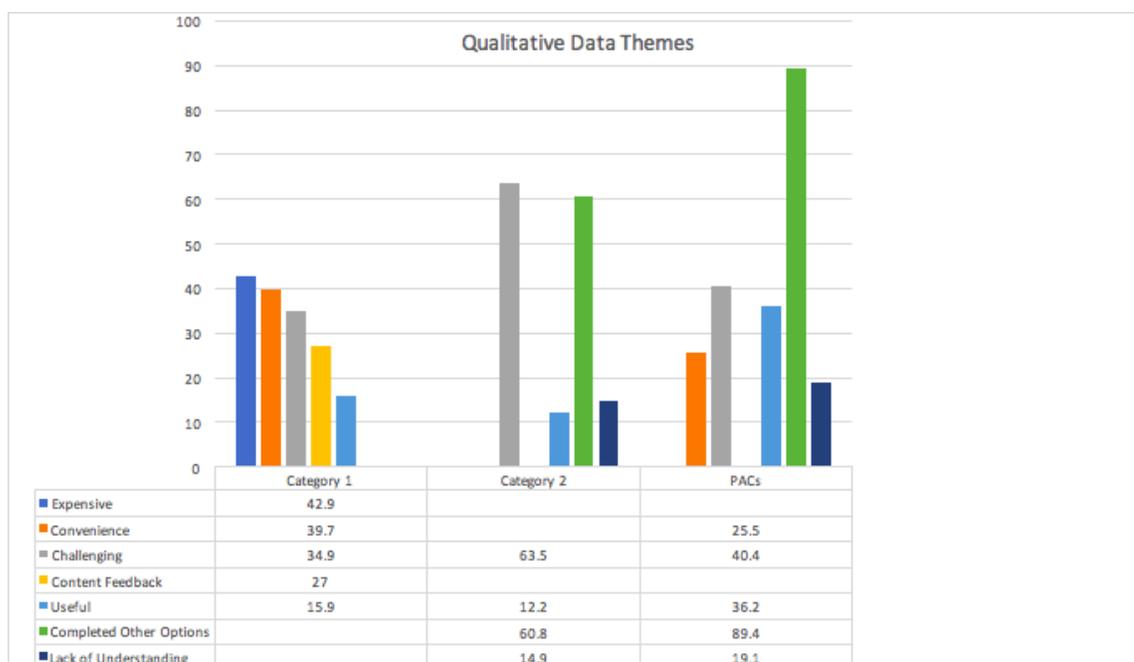


Figure III: The themes identified in the open ended responses highlight the most common thoughts and opinions of the individuals who completed the survey.

Category 1

Five themes emerged from responses to the open-ended Category 1 question: Expensive, Convenience, Challenging, Content Feedback, and Usefulness. Of the total responses in Category 1 CEUs, 42.9% of individuals felt the financial input from registration costs, travel, and accommodation costs of conferences is burdensome. One respondent stated: “I believe that requiring Category 1 CEUs is very expensive for our profession. The options are all of significant expense with many employers not reimbursing for this expense.”

Convenience was discussed by 39.7% of the respondents to this question. Comments were made such as the following: “It is easiest to get a large number of CEUs within a few days dedicated to learning by attending a conference.”

Approximately 34.9% of the responses focused on the challenging process of attending and accumulating Category 1 credits. Common topics included: time commitment, location, and difficulty retaining information. For instance, one respondent said that Category 1 CEUs are “very interesting and informative but a big time commitment and usually travel is involved, so cannot go that often.”

Twenty-seven percent of respondents commented on the information available (Content Feedback) via Category 1 CEUs. Most responses indicated that much of the information included in Category 1 CEUs activities is either outdated or irrelevant to their practice. For instance, one individual stated “there is a long time between when things are submitted to a conference and when they are presented and our field is changing fast. This makes conferences sometimes feel stale or I know that I have seen the same info presented at multiple conferences.” In addition to the lag of up-to-date information, respondents also commented on the content not being relevant to their practice. One respondent explained it as follows: “I work in a very specific area of expertise, therefore many conference topics don't apply to my daily practice.”

The least frequent theme (15.9%) was Usefulness of Category 1 CEUs. Usefulness was defined as the knowledge gained having a direct correlation to daily practice. Of those who found Category 1 CEUs useful, many individuals commented on the relevance to their own specialty. One respondent stated “This is my preferred option. I find the content to be most relevant to me.”

Category 2

Four themes emerged from responses to the open-ended Category 2 question: Challenging, Completed other options, Lack of understanding, and Usefulness. The most prominent theme was Challenging, seen in 63.5% responses. Many topics that created barriers in

Category 2 CEUs were also mentioned here. One main topic that was brought up consistently that differed from Category 1 CEUs was the process of submitting for credit for Category 2 eligible activities. Most individuals either did not engage in Category 2 activities because of the required documentation or they attended the activities but did not claim the credit. This is highlighted in the quotes below:

“Because there is a separate application process for Cat 2 CEU's, and they are not always approved, I tend to avoid this option.”

“I may attend webinars and other events sponsored by groups that provide interesting or different types of CEU opportunities... but the CEU approval process is way too burdensome for me to ever bother counting these toward my total CEU count. I get enough hours with Category 1 CEUs.”

The above quote is also a good example of the theme of Completed other options, which was seen in 60.8% of the open-ended responses for Category 2 CEU.

Following this, 14.9% highlighted a Lack of understanding of Category 2 CEUs. A majority of the lack of comprehension seemed to be due to the fact that most respondents had accumulated enough credits in other categories and did not require these credits. “[I] have never used [Category 2 CEUs]. I'm not entirely sure what qualifies at Category 2 CEUs or how to do them. I also get more than enough Category 1 CEUs, so I've never explored how to get Category 2s,” one respondent explained.

Lastly, 12.2% of respondents commented on the Usefulness of Category 2 CEUs. Comments in this theme highlighted that Category 2 CEUs were targeted to niche topics which were more relevant to an individual's practice. For example, one respondent who used Category 2 CEUs and specializes in Neurofibromatosis commented:

“This conference impacts my daily practice to a greater extent than any other form of continuing education as >50% of my patients have NF1 or NF2 and I coordinate the Neurofibromatosis program at my institution. However, I recognize that this is not typical for most genetic counselors.”

Professional Activity Credits

Responses to the open-ended PAC question yielded five themes: Completed other options, Challenging, Useful, Convenient, and Lack of understanding. The most frequent theme (89.4%) was respondents indicating they Completed other options. Similar to that of Category 2 CEUs, most individuals accumulated enough credits in other categories such that obtaining PACs was unnecessary. One individual stated: “I have not applied for any PACs, but I do these activities almost weekly. I think I have enough Category 1 CEUs that I don't bother submitting for these.” It was fairly common to see comments alluding to the fact that most perform PACs frequently, but chose not to apply for credit.

Challenging was another theme identified and was mentioned in 40.4% of open-ended responses. The arduous process of documenting and applying to get credit for PACs was “not worth the effort” according to one. Additionally, some commented that the amount of credit received for PACs was minimal and not worth the time to complete the application process to obtain credit.

Thirty-six percent of open-ended responses commented on the Usefulness of PACs and how most were completed on-the-job. One individual claimed, “Clinical supervision is a built-in part of my job; therefore these PACs are easy to attain... I also find teaching extremely valuable; it allows me to update myself on the topic I am teaching (forces me to review new literature,

etc.), again re-evaluate my thoughts in response to student questions and solidify the genetic counseling concepts and theories I am teaching.”

Convenience was mentioned 25.5% of the time and most discussed that PACs were convenient due to the practicality and abundance of PAC activities available. Responses saying that “many of us are doing these things as part of our daily lives/jobs anyway” were commonly seen.

Finally, Lack of understanding was discussed in 19.1% of responses. One respondent stated, “[I am] not that familiar with the option, but may need to explore it. Also not sure about what qualifies.” Some respondents stated their lack of knowledge directly while others responded with incorrect information.

Final Open-Ended Question

The final open-ended comment box allowed respondents to voice any opinions they had that were not captured in previous questions. These responses touched on a wide variety of topics that were narrowed down into four broad themes: Conference feedback; Finances; Process feedback; and Content feedback.

The most common theme throughout these responses was Process feedback on accumulating and submitting continuing education units, with 56.7% of respondents mentioning this. One respondent quoted, “There should be a single type of CEU. Making them different and giving different options makes everything complicated.”

Finances were discussed in 36.7% of the open-ended responses, touching on the financial stresses of attending conferences, taking time off to attend conferences, maintaining NSGC membership, registering for webinars, and countless other costs of accumulating CEUs. One respondent summarized these feelings in the following response: “The cost of CEUs is a limiting

factor for me. I have an annual CEU budget from work, but I will not participate in CEU activities that will exceed my budget.”

The next most frequently identified theme (13.3%) addressed Conference feedback. Many respondents commented that they would like to see more current topics being offered either at conference or through webinars. One respondent felt that “[organization] makes it incredibly difficult to get relevant CEUs. I learn more in my day to day work than I ever have at [organization conference]. That is a total waste for someone who is not new to the profession as the content is not cutting edge.”

Finally, 10% of individuals responded with Content feedback regarding CEUs’ relevance to daily practice. This theme can be identified in the following comment: “While it would be a lot easier for me to get a ton of CEUs for recertification through Category 2 CEUs and PACs, and they are more relevant to my specialty, I do see the value in requiring a minimum number of Category 1 CEUs - I think they keep all GCs somewhat on the same page and connected as a profession; it maintains the breadth of my knowledge and flexibility in terms of making a lateral move in my career.”

Discussion

A great quantity of data was collected and analyzed, as outlined above. The most important findings were the analyses of convenience and transferability and the themes identified in the open-ended responses. Genetic counselors have a responsibility to continue learning amidst many varied work responsibilities. As such, convenience and transferability are key characteristics of effective learning. The themes identified in the open-ended responses highlight the most common thoughts and opinions among individuals who completed the survey and yield insights into current attitudes on continuing education in the profession.

Findings across all options can be further grouped into three areas of focus: feedback regarding the process of accumulating CEUs, such as the convenience of each option and the feasibility of attending conferences or submitting documentation; feedback regarding what is learned, including transferability to practice and topics presented at conferences or webinars; and a general lack of understanding surrounding continuing education.

Process Feedback

A large portion of this survey focused on the process of accumulating CEUs with attention to all aspects of accumulating CEUs, from completing activities through submitting for credit approval.

Category 1 Continuing Education Unit Feedback

Category 1 CEUs were found to be the most convenient avenue for accumulating CEUs. By definition, Category 1 options are sanctioned and supported by ABGC which makes them easier to find, attend, and claim credit for. Possibly the biggest influence on the convenience of Category 1 CEUs is the fact that pre-approved annual conferences make it extremely easy to accumulate a large amount of credit in a small amount of time. Almost all respondents who commented on convenience gave positive feedback about efficiency and ease of obtaining these credits.

Online learning options, such as webinars or recorded lectures, were also viewed as a convenient way to accumulate Category 1 CEUs for individuals who might not have the ability to travel and attend an annual conference. One respondent stated that “I would not be able to obtain enough CEUs without an online learning option.” Many respondents prefer these options as they allow them to learn at their own pace and at any location:

“I enjoy the [academic journal] CEU program because it is online and self-paced. It is fairly quick and easy to do.”

“LOVE the way [organization] provides slides as PDFs and talks as MP3s. I can take them with me anywhere.”

“Online lectures can be a great way to learn, especially for people who are overseas and/or have family responsibilities.”

Online learning is becoming increasingly prevalent in many settings and continuing to offer these options can only improve access to learning opportunities.

Conferences, where most Category 1 CEUs are accumulated, also tend to offer many ancillary benefits. In addition to gaining knowledge, individuals are able to network with colleagues which is beneficial for building new professional relationships for research collaborations, identifying new job opportunities, or finding a new source of support when challenges arise in practice.

Negative feedback regarding the process of Category 1 options was centered around the large time commitment and financial burden. These options can range anywhere from a few hours to a few days and many respondents who are full-time counselors found it difficult to take time off for larger events. One respondent stated that conferences are “very interesting and informative, but a big time commitment and usually travel is involved, so [I] cannot go that often.” One solution offered by a respondent was to have “more regional, short conferences. These are less expensive, often easier to travel to and fit in with a family/work schedule.” While the benefits of one large annual conferences may be greater, smaller local conferences might be more feasible for many counselors.

Another drawback to the structure of one large annual conference is that many counselors expressed difficulty making use of all the information given. One individual stated “I feel like it's so much info in one gulp that I have a hard time retaining anything.” Though conferences are supposed to increase one’s knowledge and are the most convenient way to obtain CEUs, it seems that the amount of information being given may be overwhelming. One solution to this concern could again be more small, local conferences. Offering bite size pieces of information may make the information easier to remember and integrate into daily practice. The field of genetic counseling would benefit from a more exhaustive investigation into the efficacy of conference-based learning at national and regional levels.

Cost of accumulating Category 1 credits is a concern for genetic counselors. As stated by one respondent “genetic counselor salaries, while much better in the last few years, don't keep up with all the costs to practice the profession in good standing.” Some costs mentioned by respondents included yearly membership fees to relevant organizations, conference registration, travel and accomodation at conferences, and webinar fees. Many workplaces offer compensation for continuing education activities, but not all do. According to the 2016 PSS, 78% of genetic counselors receive some sort of compensation for attending conferences (National Society of Genetic Counselors, 2016). Only 54% received workplace funding for continuing education credit accumulation outside of conference fees. Even when workplaces cover some costs, they very rarely cover all; 46% of genetic counselors who receive conference funding have a yearly budget of less than \$1500. This is concerning, as maintaining competence to practice should not be dependent on an individual’s ability to pay out-of-pocket costs.

One respondent felt that “requiring specific Category 1 CEUs is somewhat of a money making endeavor for [organizations].” It is true that Category 1 CEUs are the only required

continuing education option and they do tend to be the most expensive when compared to Category 2 options or PACs. A few respondents mentioned one possible solution: “I think cost of CEUs should be included in the annual cost for certification upkeep.” As acknowledged by some respondents, “these fees may go to administrative costs [but] I think the costs of creating a CEU activity should be monitored.” A good way to monitor costs would be to have all costs included in annual membership or certification maintenance fees. This is complicated by the fact that several organizations play a role in continuing education in this field. Further exploration should be conducted to identify appropriate ways to manage these costs so they do not become prohibitive.

Professional Activity Credit Feedback

PACs were found to be the second most convenient avenue for accumulating CEUs toward recertification. As one respondent stated, it is “great that this can count as CEUs as many of us are doing these things as part of our daily lives/jobs anyway.” Student supervision, case conferences, and publication are often expected of genetic counselors in many institutions so it is useful that they can count these responsibilities towards recertification. Having a way to acknowledge and reward active, continued participation in and out of the workplace is healthy and supportive to practicing genetic counselors. Encouraging individuals to play larger roles in their institutions through these activities will only help to grow the scope of influence of the profession.

Many respondents found the documentation process daunting. One genetic counselor explained that it is “impossible to know what may or may not qualify and [I’m] TERRIFIED to use them because I am concerned about documentation and being audited.” Another respondent had similar feedback when asked about use of PACs, explaining that “I would be hesitant due to

the complexity of getting [organization] approval for this type of credit.” Whether documentation is complicated or not, respondents clearly relayed stigma related to PACs and seemed tentative to pursue this option. This raises the question of whether the benefits of learning through engagement in professional activities might be undercut by the logistical burdens of officially claiming credit for them.

Similarly, the requirements needed for an activity to meet PAC standards was perceived as too specific at times. One respondent explained that “I have participated in clinical training/supervision and participated in weekly case conferences. The way that the rules are written for PAC use, however, has prevented me from being able to count this time towards my recertification. (ie, I don't have an agenda for my case conference or a sign in sheet, so it doesn't meet the criteria).” Requirements for documenting PAC should enhance - not detract from - learning and should not deter individuals from seeking credit for the activities they are completing. It can be difficult for genetic counselors to bring about the changes necessary in their institution to have these activities count by CEU standards when other professions that require continuing medical education (CME) may not need these specific requirements. Minor changes could be made to the PAC requirements to make them easier to attain. Currently, each type of PAC has its own documentation requirements; creating one standard form could lighten the burden of onerous paperwork and give more guidance about what information should be submitted.

ABGC has already taken initiative in changing PAC requirements. As of December 31, 2019, the approved list of PACs is changing. The new list, as published by the ABGC Board of Directors in the Standards and Guidelines for CEUs and CEU providers, will remove activities that no longer meet continuing education criteria. These activities include volunteer and outreach

activities, non-peer reviewed publications including patient education materials, taking undergraduate or graduate coursework, and presentations. A handful of these activities will still count towards recertification, though under the Category 2 guidelines such as taking coursework or attending case conference and peer supervision groups. These changes show that ABGC is actively working on improving the recertification process. The list now consists of five approved activities, as opposed to the previous list of twelve. Streamlining the process and improving the specificity of what counts as a PAC may be beneficial, and future studies should assess the impact of such shifts in policy, particularly on the use of PACs towards recertification in the future (American Board of Genetic Counseling).

A piece of feedback that most likely will not be fixed by these changes is the lack of use of PACs due to completion of recertification criteria via other options, mainly Category 1 CEUs. Even though PACs are considered a convenient option, they are still significantly less convenient to use than Category 1 CEUs. With the abundance and ease of Category 1 options, many respondents stated that even when they were completing approved PACs, they were not submitting because they had more than enough Category 1 CEUs. One respondent said that “I have not applied for any PACs, but I do these activities almost weekly. I think I have enough Category 1 CEUs that I don't bother submitting for these.”

Another area of feedback that will not change under the new Standards and Guidelines is the amount of credit each professional activity is worth. A few respondents expressed frustration at the unequal amount of time and effort put into PACs compared to Category 1 or Category 2 CEUs. A respondent stated that “so many things qualify, but the time needed to get a small number of [PACs] doesn't always seem worth the effort.” A minimum of 25 hours of direct student supervision or leadership activity is equal to only 0.5 PACs. This past year at the annual

NSGC conference, individuals had the opportunity to receive up to 31.00 contact hours which is equivalent to 3.1 CEUs (ABGC Standards for Continuing Education, 2017). Attending a three day conference would yield over six times as many credits as supervising a student for 25 hours; one hour of conference time is equivalent to 0.1 CEUs, whereas 1 hour of supervision is valued at 0.02 credits. This unequal valuation dissuades many individuals from participating in and submitting for PAC credit. While attending lectures is different than supervising or leading an organization, it might be possible to close the gap. It is difficult to set criteria that quantifies skills gained across various activity options; how this is quantified would need to be investigated further.

Category 2 Continuing Education Unit Feedback

Category 2 CEUs had the lowest convenience rating. A frustrated respondent stated that “it is SO hard to arrange Category 2s [...] I have tried and failed.” Many other respondents agreed, expressing similar sentiments:

“Because there is a separate application process for Cat 2 CEU's, and they are not always approved, I tend to avoid this option.”

“It's difficult to apply and navigate this process.”

“They're a pain to get from specialty conferences, so I often don't ask for CEU credit even if I could get it.”

A recurrent topic brought up by these respondents, and in over 60% of all responses, was the cumbersome nature of the submission process. In order to submit for approval of Category 2 CEUs, an individual must submit the formal application document within 90 days of attending the event. This application includes information showing topics, time schedule, and speakers from each activity attended, as well as providing a credit certificate and paying a non-refundable

fee. Compared to the process for Category 1 CEUs, this can be considered a hassle. All of this documentation is required for good reason; continuing education activities need to be verified to ensure all individuals are being held to the same standards. However, if the process is overwhelming individuals to the point of not using this option, perhaps requirements should be reconsidered. Unlike other feedback, no respondents offered possible solutions. It is difficult to identify how to fix this process without removing the necessary verification of outside activities. These feelings of difficulty were most likely exacerbated by the underlying lack of understanding, which will be discussed later.

A positive aspect of Category 2 CEUs was their availability. One respondent appreciated this option because it allowed her to get credit for attending local conferences: “These often represent more local, Canadian conferences, whose information might be more applicable to my practice overall. These conferences are smaller and it is less easy for them to secure Category 1 CEUs.” Allowing manual submission of smaller conferences is no doubt helpful to certain individuals and should continued to be offered.

Content Feedback

This survey also inquired about content covered in various continuing education options. Content included topics covered in lectures, skills learned in activities, and how transferable these things are to daily practice.

Category 1 Continuing Education Unit Content

Category 1 CEUs were perceived as the most transferable to daily practice. Content covered by Category 1 CEUs are pre-approved by ABGC to cover topics targeted specifically for continuing education of genetic counselors according to the current practice-based competencies so it is consistent that these are perceived as the most transferable.

In opposition to this goal, many individuals felt that the topics covered in Category 1 CEU activities tended to be out-of-date or lacking in variety. As stated by one respondent, “[annual conference] needs to increase complexity...seems more like a student resource than a professional resource.” Other individuals seemed to agree saying that these options are “ideal to get lots of CEUs in a short time, but not all sessions are immediately or directly relevant to my practice.” Perhaps the convenience of accumulating these CEUs influenced the perceived transferability; since it is significantly easier to attain these credits than other options, individuals might be conflating ease with usefulness.

One respondent felt that there was a noticeable time lag between when research is conducted and when it is approved to be presented at a conference:

“There is a long time between when things are submitted to a conference and when they are presented and our field is changing fast. This makes conferences sometimes feel stale or I know that I have seen the same info presented at multiple conferences.”

As mentioned earlier, having more frequent, smaller conferences may be a solution for this.

Another solution could be to shorten the amount of time between when a proposal is submitted for presentation and when it is actually presented at conference. Shortening this turnaround time would allow more cutting edge information to be presented in a timely manner.

The specialty an individual works in seemed to impact whether they found Category 1 CEU content relevant. Cancer genetics is a prominent domain of research so there tends to be more current and relevant lecture and webinar options for counselors in that subspecialty than there are currently for those in other specialties. A respondent who worked primarily in metabolic genetics explained that they often rely on outside conferences to stay up-to-date on their specialty:

“I do primarily metabolic/biochem/NBS genetics, so there is often limited sessions on these subjects at the [annual conference]. Sometimes [other conferences] are better, but it depends on the year.”

Another individual expressed their frustration at unequal representation of topics:

“I find it frustrating that I can earn Cat1 CEUs for attending a [conference] lecture on a syndrome that is completely unrelated to my clinical area and for which I will NEVER counsel a patient, but I am unable to receive meaningful credit for less formal education that is much more relevant.”

Finding relevant and interesting lectures to attend should not be an issue in a field as diverse and fast growing as genetics. A possible improvement could be to allow a more transparent selection process. If individuals feel that they have a say in what they will be learning at conference, they will be more invested and gain more knowledge. Similarly, encouraging use of Category 2 CEUs could also fill this need as they are designed to allow continuing education in more relevant and niche topics.

Another byproduct of this was highlighted by a different respondent who explained that “I feel compelled to get CEUs so will sign up for things even if they are not directly relevant to my daily practice.” Requiring a minimum of 60% of CEUs to be Category 1 CEUs is reasonable in theory because these options should be the most relevant to all genetic counselors but it appears that some individuals feel pressured to complete these even if they are not relevant to their practice in order to meet recertification requirements. A solution to this pressure could be to lower the minimum requirement of Category 1 CEUs in order to allow individuals to pursue more relevant continuing education options. This idea might not be beneficial at this point

because of the dissatisfaction with the other options available. Diversifying content at Category 1 activities would also improve this concern by giving more relevant options to choose from.

Professional Activity Credit Content

Content learned via PACs had the second highest transferability to daily practice. This transferability can be attributed to the fact that many PACs are tasks done in daily practice including clinical supervision, teaching or patient education development. These activities are core components to professional work. The skills gained in these activities are critical, as explained by one respondent, “I think PACs have been the most useful knowledge that I have gained and the best for my resume and professional development.” Similarly, another respondent praised PACs as they felt “that volunteering with patients and getting to know them on a personal level has had a greater effect on the care I give, than any lecture.” Despite this consistently positive feedback, it is still ranked below Category 1 CEUs for transferability to daily practice. This could be because of the more difficult documentation process. It is also possible that individuals are not recognizing the skills they are gaining from these types of activities as they view them as work responsibilities as opposed to a separate education activity.

Category 2 Continuing Education Unit Content

Overall, Category 2 CEUs have the lowest perceived transferability which was somewhat surprising as those attending these activities are generally seeking them by choice. One of the themes identified in open-ended responses regarding Category 2 CEUs was their usefulness due to the ability to attend lectures or conferences for niche subjects related to specific practice needs or professional interests. The previous example of the respondent who specialized in neurofibromatosis highlighted this strength of Category 2 CEUs. However, the perceived difficulty of the process of earning credit for Category 2 CEU events may undercut

transferability of useful content. Improving knowledge about claiming credit for Category 2 CEUs could improve this dilemma and encourage more individuals to pursue these credits which allow them to develop expertise more closely related to their specialty. Similar to PACs, receiving credits for activities catered to an individual's specific practice needs should be a highly utilized and beneficial aspect of recertification.

Lack of Understanding

One particularly interesting theme noted across all open-ended responses, regarding both process and content, was a recurrent lack of knowledge. Respondents appeared to be unaware or undereducated about not only the process of accumulating and claiming credits, but also the variety of options available to them. Many times this was stated outright in comments such as "Haven't been practicing long enough; honestly not sure about the difference between Category 1 and Category 2." More often, this lack of knowledge was found in responses containing factually incorrect statements regarding the credit type they were discussing. An example of this was when asked about which PACs they have used, a respondent stated "not sure if [organization] accepts these?" If individuals are not understanding what is expected of them for recertification, it is extremely unlikely they are getting the most benefit possible out of the process. When attempting to find more information, respondents felt that navigating the certification requirements online is not intuitive, as expressed by the following response: "I am not familiar with category 2 CEUs and was unable to find a definition on the [organization] website."

These statements clearly indicated a knowledge gap that needs to be rectified. One respondent mentioned how it could be beneficial to offer a webinar or course for new graduates to go over the recertification process:

“I was just discussing with colleagues the other day that there should be an overview of continuing education for newly certified genetic counselors. I am very much figuring it out as I go and am lucky to have more experienced colleagues around to answer my questions. Maybe [organization] provides this already and I am not aware, but I feel very uninformed about timelines and the different types of CEUs and how contact hours translate, etc.”

Providing a lecture or webinar as an educational resource would not only benefit new graduates but also long-standing members of the field. As stated in the previous section, with changing guidelines starting in 2019, everyone may benefit from a refresher of how continuing education and recertification works. Resources are currently available online but can be difficult to find, as stated by one respondent: “I am not familiar with Category 2 CEUs and was unable to find a definition on the [organization] website.” If having a formal course is not feasible, having more easily accessible information online would be a step in the right direction.

Limitations

This study provided preliminary data to inform future investigations on the process and efficacy of the current continuing education system in the field of genetic counseling. We propose many cautions when interpreting these results. The study reflects opinions and attitudes from a sample that is congruent with NSGC membership. However, the findings represent self-reported responses on a topic that has not been investigated in the past. This brings up two initial limitations: there was no pre-existing data and there is likely self-selection bias. Not having previous research to guide design of the survey resulted in some data being irrelevant during final analysis as well as not having questions to address topics that might have aided interpretation. Questions not found to be relevant were not reported in this study. Specifically,

asking about learning style was not applicable for a baseline study whereas asking specialty area would have been helpful. Given the fact that counselors have not had the opportunity to share their feelings on the current CEU process, there was likely a self-selection bias. Most respondents had strong opinions to share and their opinions may not be representative of all of those who participate in continuing education.

Another limitation of the study is the lack of a clear definition of transferability or convenience. Both terms were crucial for the interpretation of data but no definition was given to participants prior to taking the survey. Responses are subjective and may not conceptually be consistent.

Due to the preliminary stage of this study, responses may be dependent on individual variables (i.e. years in practice, participation in recertification, specialty). For example, new graduates may not have participated in many CEU opportunities and therefore might have limited knowledge on the process. The nature and depth of each respondent's experience with the current continuing education process was unknown, as was how that may have affected their responses.

Conclusion

Genetic counselors have strong and varied opinions about continuing education. The themes identified via open-ended responses highlighted various important topics that could be investigated further. This data is the first step towards verifying that genetic counselors believe efficient and effective continuing education is being provided. ABGC updates standards and guidelines for recertification, but there are no published independent studies of the process providing evidence-based recommendations. Impacts of continuing education need to be questioned when current options are only "mildly convenient" to accrue and "mildly

transferable” to daily practice. This study, as a baseline, identified areas in need of further attention.

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Conflict of Interest:

Kelsey Johnson declares that she has no conflict of interest.

Jessica Shiles declares that she has no conflict of interest.

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