



# Executive Summary



# Facts about the Genetic Counseling Profession

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## Did you know...?

- ✓ Since 1999, the profession has grown significantly and as of April 2021, there are 5,629 certified genetic counselors (CGCs)<sup>1</sup> in the U.S.
- ✓ The genetic counseling profession has grown by over 100% in the last ten years and is expected to grow another 100% over the next ten years. By 2025 there should be nearly 7,500 certified genetic counselors, and by 2030 there are likely to be over 10,000. Significant growth is being driven by the creation of additional training programs and the expansion of current programs<sup>2</sup>.
- ✓ Genetic counselors work in a variety of settings, including but not limited to university medical centers, private and public hospitals/medical facilities, diagnostic laboratories, health maintenance organizations, not-for-profit organizations, and government organizations and agencies.
- ✓ Genetic counselors work in multiple areas of practice, including prenatal, cardiology, cancer, metabolic disease, neurology, pediatrics, infertility, pharmacogenetics, genomic medicine, and others.
- ✓ Increasing demands for genetic expertise in varied fields provides genetic counselors new ways of using their training in genetic counseling. These include working in administration, basic and behavioral research, public and professional education, educational content development and editing, public health, private industry, laboratory support, public policy, public relations and consulting.
- ✓ The average salary for a full-time genetic counselor is \$97,976 USD<sup>3</sup> but can reach up to \$257,000 USD, depending on specialty area, training, and experience.
- ✓ Ninety-eight percent of genetic counselors have a Master's degree in human genetics or genetic counseling.
- ✓ Nine out of ten genetic counselors report they are satisfied with their current job<sup>3</sup>.
- ✓ The National Society of Genetic Counselors (NSGC), founded in 1979, promotes the professional interests of genetic counselors and provides a network for professional communications. As of 2021, NSGC has over 4,000 members.
- ✓ The American Board of Genetic Counseling (ABGC) is a not-for-profit organization incorporated in 1993 for the purpose of certifying and recertifying genetic counselors.
- ✓ The Accreditation Council for Genetic Counseling (ACGC) accredits genetic counseling training programs. As of May 2021, there are 55 accredited training programs in the U.S. and Canada<sup>4</sup>.

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<sup>1</sup> American Board of Genetic Counseling, April 2021.

<sup>2</sup> <https://www.nsgc.org/>.

<sup>3</sup> Data from the 2021 PSS.

<sup>4</sup> <https://www.gceducation.org/>.

# About the Survey

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The National Society of Genetic Counselors (NSGC) administers a Professional Status Survey (PSS) to its members. Since the survey was first administered in 1980, results from the NSGC PSS have served many purposes, including establishing benchmarks for salaries and benefits for genetic counselors, identifying workforce issues, and gauging job and professional satisfaction in the genetic counseling community. Data from the PSS originate from genetic counselors working in a variety of settings, including those who work in hospitals, academic centers, diagnostic laboratories, the private sector and public health.

Historically, the full PSS has been offered biennially and is now offered annually. In even years, a comprehensive PSS is administered, and in odd years, a shortened version is administered to monitor information that may change rapidly from year-to-year. The published reports from the PSS provide a detailed profile of the current genetic counseling community, primarily in the U.S. and Canada, and identify new and emerging trends in this growing profession. The analysis also provides information useful to individual genetic counselors and those who interact with them, including prospective employers, human resource departments, medical associations, as well as individuals who are considering entering the profession or obtaining genetic counseling services. The information collected by the PSS also helps the NSGC achieve its strategic priorities in J.E.D.I. (justice, equity, diversity and inclusion) by carefully tracking members' demographics and monitoring changes over time related to members' demographics, professional status and job satisfaction.

## The 2021 PSS

The PSS was administered from January 4, 2021 through February 26, 2021 to eligible genetic counselors who are either Full, Emeritus, or New members of the National Society of Genetic Counselors (NSGC) and/or diplomates of the American Board of Genetic Counseling (ABGC).

A total of 3,006 completed surveys were received from the 5,437 solicited from the two organizations, resulting in a 55% percent response rate. This is the highest response rate since 2008 and demonstrates the widespread interest in sharing professional information. The response rate also reflects the commitment genetic counselors have to their profession.



## ***Definition of Terms***

A glossary of terms was created to assist respondents in understanding survey questions during survey administration. The terms included in the glossary were identified by the PSS subcommittee as key terms that may need clarification and these are bolded throughout the reports. The full glossary of terms can be found in the *Demographics and Methodology* report.

## ***Scope of the PSS***

This year's PSS addresses questions in the following areas:

- Genetic Counselor Education and Experience
- Professional Status/Work Environment
- Salary and Benefits
- Board Certification/Licensure
- Satisfaction and Inclusion

## ***The COVID-19 Pandemic***

The 2020 PSS was administered right before the COVID-19 pandemic spread throughout the world. The 2021 PSS was administered in the tenth month of the COVID-19 pandemic, as lockdowns persisted and the first vaccines were being rolled out. Response options for several survey questions were altered to reflect workforce changes that resulted from the pandemic. Significant year-over-year differences in responses will be highlighted in the PSS 2021 reports, including the *PSS Special Report: Workforce Changes During the Pandemic*.

## ***Demographics Data***

Ethnic and racial demographic data, and information about sexual orientation and gender identity (SOGI) and disability status have been collected through the PSS over the years, with the definitions and scope of data collected continually evolving. To date, these data have been analyzed and reported in a limited capacity yielding descriptive statistics only. Committed to issues of social justice, equity, diversity and inclusion (JEDI), the NSGC will now move to allow enhanced analysis of member demographics to further its work on JEDI; illuminate disparities; inform its initiatives, protocols and guidelines; and produce special reports to its membership. This year, a Demographics Workgroup was convened to review PSS questions related to member demographics to assure their inclusivity, appropriateness, and accuracy.

# Demographics

The majority of genetic counselors who responded to the 2021 PSS identified as female; 94% of the respondents identified as female and 5% identified as male. Five respondents preferred not to respond, seven indicated non-binary/third gender, and two preferred to self-describe. Three percent of respondents identified themselves as part of a disability community. This is consistent with previous administrations of the PSS.

Among PSS respondents, 2% identify as Gay or Lesbian, 4% Bisexual, 1% provided a self-description, and 1% preferred not to respond to the question. Three respondents (0.1%) identified as transgender and fourteen preferred not to respond to the question.

The majority of respondents (90%) identified as White/Non-Hispanic. Three percent identified as Hispanic or LatinX<sup>5</sup>. Three percent identified as two races, and 0.2% identified as three races. For more information, please refer to the *Demographics and Methodology Report*.

<b>Table 1. Respondent Race/Ethnicity</b>	<b>Not Hispanic or LatinX</b>	<b>Hispanic or LatinX</b>	<b>Prefer not to respond</b>	<b>Total</b>	<b>%</b>
White	2,619	70	6	<b>2,695</b>	<b>90%</b>
East Asian: Chinese, Japanese, Korean, Okinawan, Taiwanese, Tibetan	141	2	0	<b>143</b>	<b>5%</b>
South Asian: Bangladeshi, Bhutanese, Indian, Maldivians, Nepali, Pakistani, Sri Lankan	87	0	1	<b>88</b>	<b>3%</b>
Black/African American	45	2	0	<b>47</b>	<b>2%</b>
West Asian/Middle Eastern/North African	47	0	0	<b>47</b>	<b>2%</b>
Southeast Asian: Bruneian, Burmese, Cambodian, Filipino, Hmong, Indonesian, Laotian, Malaysian, Mien, Singaporean, Timorese, Thai, Vietnamese	28	0	0	<b>28</b>	<b>1%</b>
Native American/Alaska Native/First Nations	9	2	0	<b>11</b>	<b>&lt;1%</b>
Native Hawaiian/Pacific Islander	3	1	0	<b>4</b>	<b>&lt;1%</b>
Other	20	7	0	<b>27</b>	<b>1%</b>
Prefer not to respond	1	2	14	<b>17</b>	<b>1%</b>
<b>Total</b>	<b>2,894</b>	<b>78</b>	<b>21</b>	<b>2,993</b>	

\*Respondents had the option to select more than one race.

<sup>5</sup> Other reported responses included American European, Armenian, Ashkenazi Jewish, Caribbean (Trinidad), Venezuelan, Greek, Indian and Argentinian, Mestiza, Middle Eastern, Orthodox Jewish, South American, Venezuelan/Puerto Rican, West Indian, and White/South American.

## Geographical Representation

The 2021 PSS generated responses from every U.S. state except West Virginia. Just under half of survey respondents (49%) work in ten U.S. states (in descending order; generated from work postal codes): California, New York, Pennsylvania, Texas, Ohio, Massachusetts, Illinois, Michigan, North Carolina, and Minnesota.

Canadian genetic counselors represented six percent of respondents to the PSS. The majority of Canadian respondents work in Ontario (55%), followed by British Columbia (19%) and Alberta (12%).

Figure 1. PSS Respondents: United States

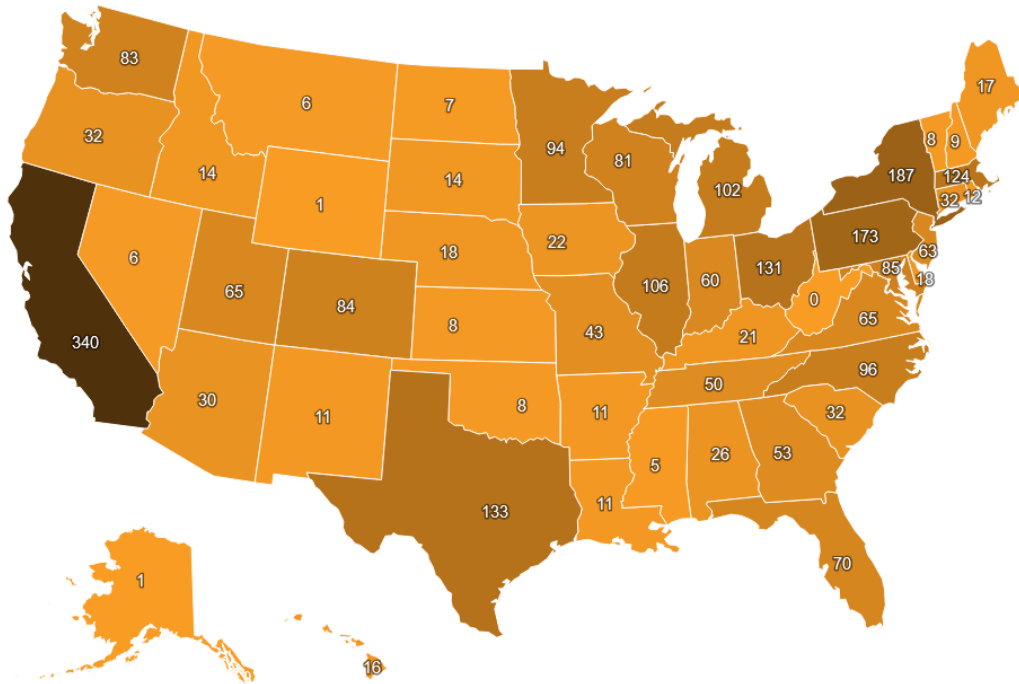
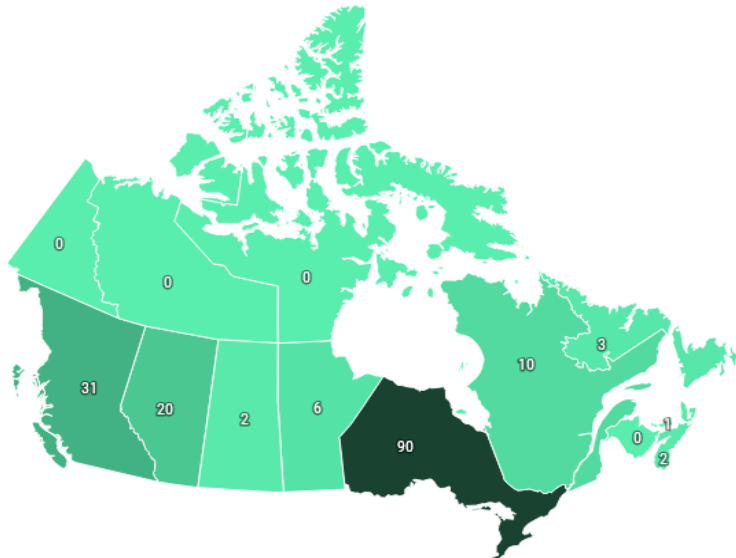


Figure 2. PSS Respondents: Canada



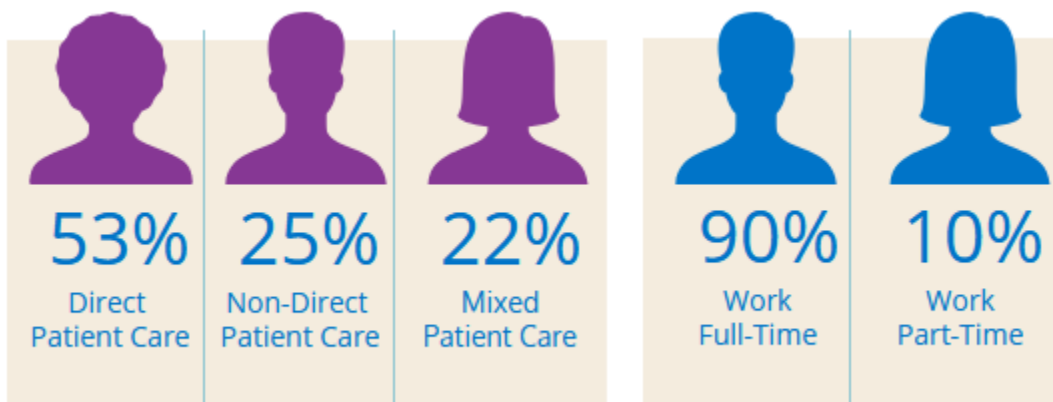
For the 2021 PSS, respondents were also grouped by U.S. Metropolitan Statistical Areas (MSA)<sup>6</sup> based on their work zip code. MSAs with 20 or more respondents are shown below in descending order. Two-thirds of U.S. respondents to the PSS (66%) work in these MSAs.

<b>Table 2. Metropolitan Statistical Areas (MSA)</b>	<b>N</b>	<b>% of U.S. Respondents</b>
New York, NY	129	4.8%
Boston, MA	108	4.0%
Chicago, IL	100	3.7%
Los Angeles, CA	83	3.1%
Philadelphia, PA	82	3.0%
Minneapolis, MN	73	2.7%
Washington, DC	72	2.7%
Denver, CO	67	2.5%
Salt Lake City, UT	63	2.3%
San Francisco, CA	60	2.2%
Seattle, WA	60	2.2%
Houston, TX	58	2.1%
Annapolis, MD	52	1.9%
Pittsburgh, PA	50	1.8%
Indianapolis, IN	49	1.8%
Detroit, MI	47	1.7%
Chapel Hill, NC	47	1.7%
Palo Alto, CA	46	1.7%
Atlanta, GA	43	1.6%
Cincinnati, OH	42	1.6%
Columbus, OH	40	1.5%
Irvine, CA	38	1.4%
San Diego, CA	37	1.4%
Milwaukee, WI	35	1.3%
Cleveland, OH	31	1.1%
Portland, OR	30	1.1%
Kansas City, MO	28	1.0%
Dallas, TX	27	1.0%
Oakland, CA	27	1.0%
Madison, WI	24	0.9%
Tampa, FL	24	0.9%
Garden City, NY	23	0.8%
Phoenix, AZ	23	0.8%
Charlotte, NC	22	0.8%
Nashville, TN	22	0.8%
Ann Arbor, MI	21	0.8%
Livingston, NJ	20	0.7%

<sup>6</sup> In the United States, a metropolitan statistical area (MSA) is a geographical region with a relatively high population density at its core and close economic ties throughout the area. MSAs are defined by the U.S. Office of Management and Budget and used by the Census Bureau and other federal agencies for statistical purposes. The names associated with these MSAs correspond to the largest city in their area rather than the name of the county.

# Genetic Counselor Work Environments

Nine of ten PSS respondents (90%) reported working full-time (defined as 37.5 or more hours per week). Over half have a direct patient care position (53%), while 25% have a non-direct patient care position, and 22% have a mixed position.



Genetic counselors who responded to the 2021 PSS reported working for a wide variety of employer types. However, three-quarters (75%) work for one of four employer types: academic medical centers, private hospitals, commercial diagnostic laboratories, or public hospitals. Those in direct patient care positions were more likely to be employed by a hospital or other medical setting than those in non-direct patient care or mixed positions. Conversely, those who have non-direct patient care positions were more likely to be employed by a commercial diagnostic laboratory.

Table 3. Top 5 Work Settings	Direct patient care		Non-direct patient care		Mixed position		All Positions	
	N	%	N	%	N	%	N	%
Hospital/Medical Facility – Academic Medical Center	621	40%	41	6%	279	44%	941	32%
Hospital/Medical Facility – Private (nonprofit or for profit)	456	30%	24	3%	89	14%	569	20%
Diagnostic Laboratory – Commercial, Non-academic	46	3%	346	48%	91	14%	483	17%
Hospital/Medical Facility - Public	229	15%	8	1%	34	5%	271	9%
University	22	1%	53	7%	40	6%	115	4%



Respondents were asked to report the significant roles they fill within their current position. The top three significant roles reported by those in direct patient care positions were: direct patient care, student supervision, and education/teaching. For those in non-direct patient care positions, the most commonly reported roles were: education/teaching, laboratory report writing, and laboratory support/customer service. Those who are in mixed positions reported more diverse roles and were more likely to have clinical management and supervisory roles compared to those who have direct or non-direct patient care positions. Direct patient care, clinical coordination, and student supervision were reported as the top three significant roles for mixed positions. Genetic counselors who responded to the PSS reported similar rates of teaching/education and advocacy across settings.

<b>Table 4. Top 5 Roles in Current Position</b>	<b>Direct patient care</b>		<b>Non-direct patient care</b>		<b>Mixed position</b>		<b>All Positions</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Direct Patient Care	1,513	99%	4	1%	557	87%	<b>2,074</b>	<b>72%</b>
Education/Teaching	601	39%	275	38%	331	52%	<b>1,207</b>	<b>42%</b>
Supervision - Students	746	49%	101	14%	315	49%	<b>1,162</b>	<b>40%</b>
Coordination - Clinical	520	34%	43	6%	259	40%	<b>822</b>	<b>28%</b>
Research	176	11%	145	20%	242	38%	<b>563</b>	<b>19%</b>

Respondents could select more than one item, so the total will not add up to 100%. Percentages reflect the total number of respondents indicating each item divided by the total number who responded to the question.

Adult cancer genetics and prenatal genetics were the most frequently cited practice areas by a substantial margin. The next two most common areas reported were pediatrics and preconception/reproductive screening. There were significant differences in practice areas between respondents in direct patient care and non-direct patient care positions. Within a single position, genetic counselors who responded to the PSS often had more than one area of practice. Similar to previous administrations of the PSS, over half (59%) reported having two or more areas of practice. For more information about genetic counselor work environments, please see the *Work Environment Report*.

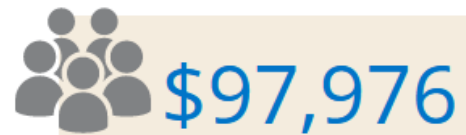
<b>Table 5. Top 5 Areas of Practice (Any)</b>	<b>Direct patient care</b>		<b>Non-direct patient care</b>		<b>Mixed position</b>		<b>All Positions</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Cancer Genetics - Adult	771	50%	211	29%	251	39%	<b>1,233</b>	<b>43%</b>
Prenatal	579	38%	138	19%	138	22%	<b>855</b>	<b>30%</b>
Pediatrics	440	29%	73	10%	159	25%	<b>672</b>	<b>23%</b>
Preconception/Reproductive Screening	402	26%	79	11%	103	16%	<b>584</b>	<b>20%</b>
General Adult Genetics	344	22%	47	7%	106	17%	<b>497</b>	<b>17%</b>

Respondents could select more than one item, so the total will not add up to 100%. Percentages reflect the total number of respondents indicating each item divided by the total number who responded to the question.

# Salary and Benefits

The average yearly gross salary reported by all full-time genetic counselors who responded to the 2021 PSS was \$97,976.

This is an increase from the 2020 PSS. Comparisons between years must be viewed with caution, however, due to the proportional increase in salaries of those in non-direct patient care positions and mixed positions who participate in the PSS each year.



Average salary for full-time genetic counselors

PSS 2021 respondents

<b>Table 6. Full-Time Salaries 2021 PSS</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>25th Percentile</b>	<b>75th Percentile</b>	<b>90th Percentile</b>
Direct patient care position	1,184	\$84,793	\$81,495	\$75,000	\$90,990	\$105,000
Non-direct patient care position	632	\$122,423	\$115,000	\$97,000	\$144,000	\$169,250
Mixed position	515	\$98,283	\$93,500	\$80,350	\$110,850	\$129,000
<b>Total</b>	<b>2,331</b>	<b>\$97,976</b>	<b>\$89,489</b>	<b>\$78,389</b>	<b>\$109,654</b>	<b>\$137,000</b>

The average starting salary for a full-time genetic counselor who graduated in 2020 was \$76,702.

This is an increase of 1.8% from the starting salaries reported by new graduates in 2019. The average starting salary reported by new graduates in full-time positions in 2019 was \$75,319<sup>7</sup>, 2018<sup>8</sup> was \$71,114, 2017<sup>9</sup> was \$71,159, and in 2015<sup>10</sup> was \$71,000.



Average salary for new graduates in full-time positions

<sup>7</sup> As reported in the 2020 PSS.

<sup>8</sup> As reported in the 2019 PSS.

<sup>9</sup> As reported in the 2018 PSS.

<sup>10</sup> As reported in the 2016 PSS. The PSS was not administered in 2017 so there is no information for 2016 graduates.

The percentages of respondents who had the option to receive specific benefits are shown below. These are the ten benefits that were most frequently reported by respondents as being included in their benefits packages, regardless of whether or not the respondents elected to use the benefit. For more information, including detailed analysis of genetic counselor salaries and the complete list of benefits offered to genetic counselors, please see the *Salary and Benefits Report*.

<b>Table 7. Top Ten Benefits by Position</b>	<b>Direct patient care</b>		<b>Non-direct patient care</b>		<b>Mixed position</b>		<b>All Positions</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Health insurance	1,415	93%	684	95%	592	93%	2,691	93%
Dental insurance	1,357	89%	678	94%	586	92%	2,621	91%
Life insurance	1,296	85%	639	89%	524	82%	2,459	85%
Vision plan	1,251	82%	660	92%	540	85%	2,451	85%
Disability (short or long term) insurance	1,196	78%	628	87%	523	82%	2,347	81%
Continuing Education/Conference funding	1,182	77%	628	87%	517	81%	2,327	81%
Retirement savings (with employer match)	1,194	78%	613	85%	484	76%	2,291	79%
Accidental death and dismemberment insurance	847	55%	523	73%	400	63%	1,770	61%
Pre-tax expense accounts (childcare, medical)	781	51%	536	74%	379	59%	1,696	59%
Employee Assistance Program	744	49%	494	69%	366	57%	1,604	56%
Wellness incentives	806	53%	352	49%	322	50%	1,480	51%

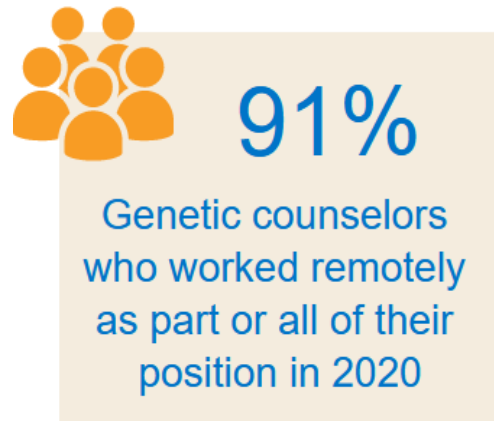
# Workforce Changes during the COVID-19 Pandemic

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## Remote Work

Ninety-one percent of respondents reported working remotely in 2020 either some or all of the time. This compares to 40% who reported working remotely, either some or all of the time in last year's survey that was administered before the COVID-19 pandemic<sup>11</sup>.

Eighty-five percent of respondents who have direct patient care positions reported working remotely in 2020 (versus 20% in 2019, 16% in 2018, and 13% in 2017). Ninety-nine percent of respondents who have non-direct patient care positions reported working remotely (versus 78% in 2019, 74% in 2018, and 73% in 2017).



## Furloughs and Unemployment

Ten percent of genetic counselors who responded to the PSS (N=282/2,894 who answered the question) reported they were furloughed in 2020 compared to 1% in previous years<sup>12</sup>. This significant uptick from previous surveys ( $p < .01$ ) is likely due to the COVID-19 pandemic. Among respondents who were furloughed, 47% reported their furlough lasted 1-10 days, and 27% were furloughed for 21 days or more. Respondents in direct care positions were significantly more likely to have been furloughed in 2020 compared to those in non-direct care or mixed positions ( $p < .01$ ), and also more likely to have been furloughed for a longer period of time ( $p < .01$ ).

Thirty-six (1%) respondents reported being unemployed in 2020. Sixteen were unemployed for the entire year and 20 became unemployed during that time<sup>13</sup>. Among those unemployed, 41% (15/36) left their employment by choice. Others indicated that their unemployment was due to COVID-19 layoffs, lack of telecommuting options, or concerns about COVID-19 safety protocols at the workplace.

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<sup>11</sup> Remote workers comprised 35% of survey respondents in 2019, and 32% in 2018.

<sup>12</sup> 1% reported being furloughed in the 2016, 2018 and 2019 PSSs.

<sup>13</sup> Compares to 13 genetic counselors who became unemployed in 2019.

## Changes to Salary and Benefits

Most full-time genetic counselors who responded to the PSS (91%) reported no change to their pay or reported an increase in 2020, and 9% of respondents had their pay decreased temporarily or permanently during that time. Not surprisingly, the primary reason given for reductions in pay in 2020 was the COVID-19 pandemic. The average pay reduction was 12.6%, with a median of 10.0%.

A greater percentage of respondents were offered the option to work remotely, offered back up daycare or sick child daycare, and paid maternity/parental leave in 2020 compared to in 2019.

Fewer respondents were offered gym memberships, life insurance, tuition reimbursement, partial maternity/parental leave, pension benefits, transportation reimbursement, accidental death or dismemberment insurance, continuing education/conference funding, disability insurance, or pre-tax expense accounts. Some changes to benefits can be attributed to the COVID-19 pandemic (i.e., the option to work remotely). For more information about changes to the genetic counseling workforce during the COVID-19 pandemic, please see the *PSS Special Report: Workforce Changes During the Pandemic*.

<b>Table 8. Changes to Benefits</b>	<b>2020 PSS</b>	<b>2021 PSS</b>	<b>Change</b>
Option to work remotely	36%	45%	<b>9%</b>
Back up daycare/sick child daycare	12%	15%	<b>3%</b>
Paid maternity/parental leave - full	26%	29%	<b>3%</b>
Gym membership	14%	11%	<b>-3%</b>
Life insurance	88%	85%	<b>-3%</b>
Tuition reimbursement (for self)	28%	25%	<b>-3%</b>
Paid maternity/parental leave - partial	30%	26%	<b>-4%</b>
Pension	23%	19%	<b>-4%</b>
Transportation or transportation reimbursement	22%	18%	<b>-4%</b>
Accidental death and dismemberment insurance	65%	61%	<b>-4%</b>
Continuing Education/Conference funding	86%	81%	<b>-5%</b>
Disability (short or long term) insurance	86%	81%	<b>-5%</b>
Pre-tax expense accounts (childcare, medical)	64%	59%	<b>-5%</b>

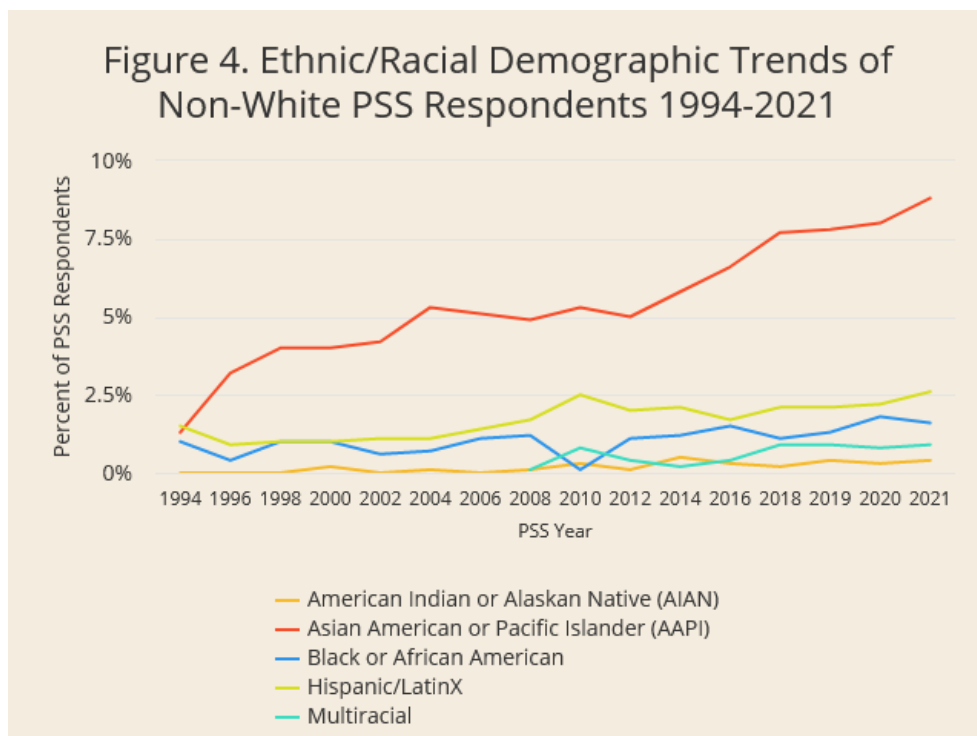
Respondents could select more than one item, so the total will not add up to 100%. Percentages reflect the total number of respondents indicating each item divided by the total number who responded to the question.

# Professional Diversity, Inclusion, and Satisfaction

## Diversity of the Profession

Recognizing the importance of diversity and inclusion in the genetic counseling profession and acknowledging diversity as encompassing a wide spectrum of characteristics, the PSS has created a special report in 2021. A number of demographic factors are currently captured, including race and ethnicity, gender identity, sexual orientation, and disability status.

Diversity in the profession remains relatively unchanged over the years of PSS administrations. In 2021, 5% of respondents to the PSS identified as male and <1% of respondents indicated non-binary/third gender. Black/African American individuals who account for more than 13% of the US population continue to make up less than 2% of NSGC membership. Three percent of PSS respondents identified as Hispanic or LatinX, and 10% identified as a race other than white.



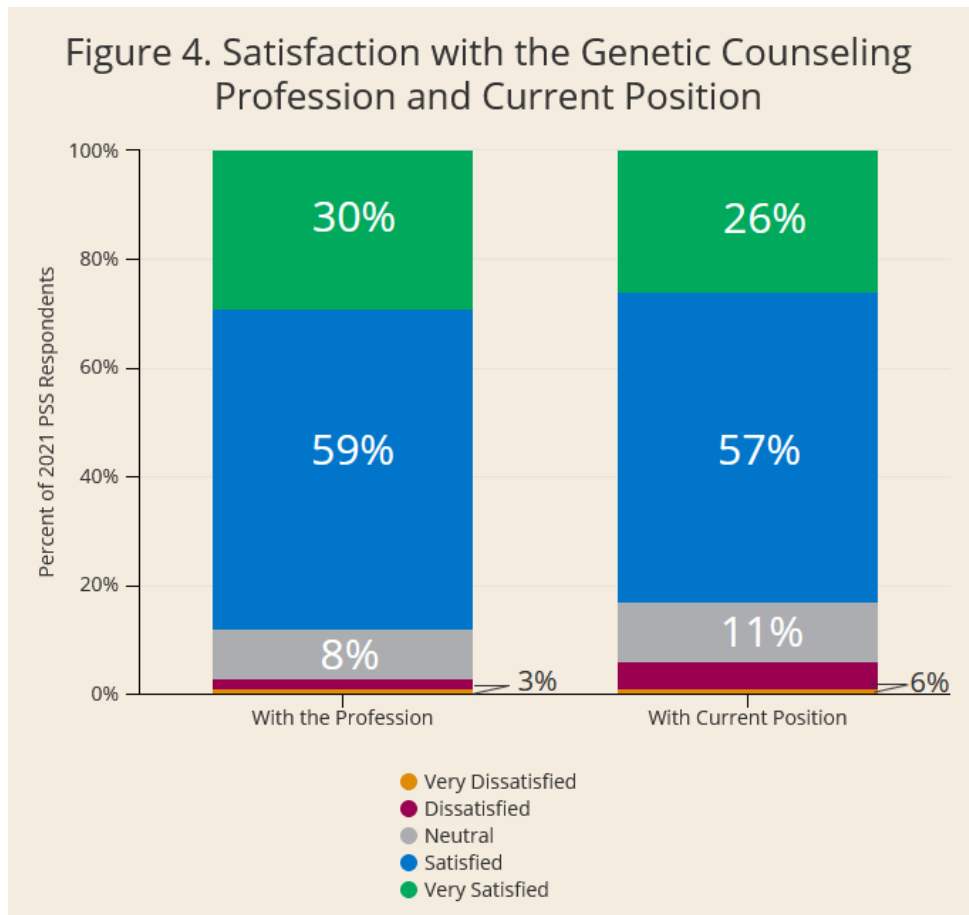
## Inclusion within the Profession

When asked about the genetic counseling profession, genetic counselors who responded to the PSS were more likely to agree with the statement “I feel like I belong” and significantly less likely to agree that “people from all backgrounds have equal opportunities to succeed” and that they “can voice a contrary opinion without fear of negative consequences” ( $p < .05$ ). It is also important to note that genetic counselors who identify within underrepresented groups, either based on race/ethnicity, gender identity, sexual orientation, or disability status, are less likely to agree with the statement “I feel like I belong” ( $p < .05$ ). This is consistent with past administrations of the PSS.

## Satisfaction with the Profession

Respondents to the PSS were asked to rate their levels of satisfaction with various aspects of the genetic counseling profession. Most genetic counselors who responded to the 2021 PSS (89%) reported they are “satisfied” or “very satisfied” with the genetic counseling profession overall. This high level of satisfaction exists regardless of position type (direct patient care, non-direct patient care, or mixed). These results are consistent with past administrations of the PSS.

For more information please see the *PSS Special Report: Professional Diversity, Inclusion, and Satisfaction*.



# Data Analysis and Methodology

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## Survey Administration

The 2021 PSS was independently administered online by InfoSurv Research. Hundreds of real-time and server-side validation checks were built into the survey instrument to ensure client-side data accuracy. These validation checks flag data that are significantly out of expected range. To ensure reporting of accurate data, survey respondents were able to answer questions, review previous answers, correct, and modify responses, and return to the survey multiple times to complete it at their convenience.

## Data Analysis & Methodology

The online administration of the PSS was completed in February 2021. The survey data were independently analyzed by Boston Information Solutions using SPSS<sup>14</sup> version 26. The data were further validated to eliminate inconsistencies, duplicates, outliers, input errors and other data anomalies. Frequencies and means reported are based on the number of respondents who answered the specific question. Statistical comparisons of group differences, such as T-tests and Chi-Square procedures, are reported as significant if  $p < 0.05$ . Percentages reported are often rounded for readability.

## Data Anonymization and Privacy

Efforts are made to protect genetic counselors' identities, and respondents are informed that they have the option of skipping questions (e.g., salary information). When  $N < 10$  responses, additional measures are taken to protect individuals' anonymity. Over the past two decades, the NSGC has adhered to a strict policy whereby no aggregate salary information will be shared when  $N < 5$ , or in cases where any individual or group of genetic counselors might be personally identified in the PSS reports. Raw PSS survey data are not shared with genetic counselors engaged in research activities, nor are the data available to employees in the NSGC office. PSS data are collected and analyzed by professionals with no affiliation to the NSGC and who are not in the genetic counseling community.

## Geographic Data

The 2021 PSS asked genetic counselors to furnish their home postal codes, their work postal codes, and their employer's postal code (if they work remotely). Descriptive and comparative geographical data seen throughout the series of PSS reports (U.S. states, major metro areas, and Canadian provinces) are derived from the work postal codes reported by genetic counselors.

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<sup>14</sup> SPSS (Statistical Package for the Social Sciences) is a widely used program for statistical analysis in social science.



## Salary Data

Information about the salaries of genetic counselors is one of the most useful aspects of the PSS. The accuracy and specificity of the compensation analyses depend on the willingness of genetic counselors to divulge this sensitive information and trust that it will be held in the strictest confidence.

Over the past two decades, the NSGC has adhered to a strict policy whereby no aggregate salary information will be shared when the number of respondents is fewer than 5 (N<5) or in cases where any individual or group of genetic counselors might be personally identified. When the number of respondents for a specific subcategory is between five or nine (N=5-9), only median and average salary data are reported to maintain privacy of genetic counselors with outlier salary values. Additionally, PSS data are analyzed by professionals with no affiliation to the NSGC and who are not in the genetic counseling community.

Of the 3,006 total respondents to the 2021 PSS, 2,478 (82%) shared salary information. Canadian dollars were converted to U.S. dollars based on the CAN-USD exchange rate as of December 31, 2020. The salaries reported by genetic counselors who lived or worked outside the U.S. and Canada were not used in the analyses. Statistical outliers (extremely high and low salaries) were removed before analyses were performed using an Interquartile Range Rule of 3. Unless otherwise noted, salary comparisons are for full-time genetic counselors (part-time salaries were not converted into full-time equivalents). Salary information for part-time workers is reported separately. More detailed information about compensation levels for genetic counselors can be found in the *Salary & Benefits Report*.

## Learn More

In addition to the Executive Summary, there are five other reports that document results from the 2021 PSS. Please contact the NSGC if you would like copies of the reports.

1. The ***Demographics and Methodology Report*** provides a high-level overview of the composition of survey respondents to the 2021 PSS.
2. The ***Work Environment Report*** provides information from genetic counselors about the nature of their work, areas of practice, and significant roles.
3. The ***Salary & Benefits Report*** provides detailed analyses of salaries in the genetic counseling profession. The report also provides information about per diem and hourly rates, bonuses and commissions, average raises and extra income, benefits, vacation time, conference funding and employer-funded benefits for genetic counselors.
4. The ***PSS Special Report: Workforce Changes During the Pandemic*** examines changes in the job market and the genetic counseling workforce during the COVID-19 pandemic.
5. The ***PSS Special Report: Professional Diversity, Inclusion and Satisfaction*** examines the various facets of diversity, inclusion, and satisfaction with the genetic counseling profession.

# Acknowledgements

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NSGC wishes to recognize and extend gratitude to the many genetic counselors who volunteered their time and expertise to create and manage the 2021 PSS, and who also authored and edited the reports that detail the results of the survey.

## 2021 PSS Leadership

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The **National Society of Genetic Counselors (NSGC)**, incorporated in 1979, is the leading voice, authority and advocate for the genetic counseling profession, representing more than 4,000 health professionals. NSGC advances the various roles of genetic counselors in health care by fostering education, research, and public policy to ensure the availability of quality genetic services and is committed to ensuring that the public has access to genetic counseling and genetic testing.

For additional information  
about genetic counselors, please visit  
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