

Invitae
2022 ESG Report
Healthcare for Humanity



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From Our CEO and Cofounder



To our patients, clinicians, employees, investors and other stakeholders:

Invitae was founded with a singular mission: to bring genetics into mainstream medicine to improve healthcare for billions of people worldwide. We are unwavering in our goal to meet the needs of our customers—our patients, clinicians and payers—and our sense of urgency grows stronger with each passing year. We believe that the era of genome management is in our view and genetic information has the ability to transform the way medicine is practiced.

We believe that integrating genetic and other healthcare information in an open-source genomic information platform serving all patients across all stages of life is the best way to accomplish this. We are building a platform that provides the patient with easy access to testing as well as a centralized hub for all of their genomic and clinical information, which together comprise a powerful dataset with the potential to drive research and improve healthcare decision-making. Once that data is collected and in the hands of the patient, we believe it is their property and should be accessible to them, usable for their benefit and that of their families, and shared for the benefit of science and medical progress across the globe. We place a heavy emphasis on both transparency and only sharing patient data with patients' permission to engender long-term trust in our approach. We support policies that encompass these beliefs. We want to empower people to take steps to stay healthy longer and get healthy faster. I have never been more sure of our team working to drive this mission forward, and how our journey is unfolding.

In this report, we highlight the tangible progress we have made against our environmental, social and governance (ESG) goals and metrics, and share the long-term vision of our sustainability journey. Making progress on ESG efforts and sharing Invitae's commitment to ESG are not symbolic gestures—they are central to our mission of improving life for billions on this planet and are part of our DNA.

Our belief that climate change, social inequity and the actions of corporations have a direct impact on the health of individuals has grown even stronger as we've invested time and resources to expand our capabilities in this space. We are committed to leading with sustainable practices and are doubling down on these efforts.



Our relentless focus on healthcare for humanity is the most material aspect of ESG impacting the success of our business both domestically and internationally. We believe that driving down the cost of and breaking barriers to obtaining genetic information will increase its personal and clinical utility. This is particularly true when it comes to populations and individuals who have historically been left out by the previously high cost of genetic testing, lack of access to a qualified clinician and often insufficient healthcare coverage.

Through a combination of dramatically lowering the cost of testing, advocacy with our partners who subsidize testing in specific patient populations and a generous patient-assistance program, we have been able to expand access and pledge to continue such efforts. We publicly and privately advocate for policies that support these efforts and help create the infrastructure needed to deliver personalized medicine while actively working with policymakers to pass laws advancing these positions. A major focus of our work in 2021 involved our continued push to advance the science of genetics through our research and academic partnerships and close the gap in data and genetic utility for people of non-European ancestry. We are proud to highlight those efforts below.

Having served more than 2 million patients—the majority of whom have allowed their data to inform their future healthcare decisions, those of their families or to further research—our data platform is built to deliver on a unique vision of healthcare and the sharing of data to benefit patients and society. We believe that the disruptive platform approach we’re taking—the building of an open ecosystem of data that drives better outcomes for all, combined with our strong privacy infrastructure and a proven ability to generate both personal health and scientific value—is truly groundbreaking.

I am proud of our world-class team and unique culture that enable us to make tangible progress on our goals. Even in a very tough year still impacted by COVID-19, there has been a relentless focus on diversifying our workforce and providing structured

support where all employees have the opportunity to excel. We believe it is essential that our team reflects those we hope to serve, and we prize having a company culture of inclusion and belonging that attracts the brightest minds who can help us achieve our mission. The team driving our ESG mission thrives in a culture designed to enable innovation at scale. We are grounded in freedom with accountability and a universal sense of urgency and ownership. Teammates at Invitae are empowered to speak up, try new things and make decisions that push us forward. Our people have the satisfaction of doing meaningful work.

And finally, it is critical to note that climate change is the defining crisis of our time and is happening even more quickly than many scientists forecasted. We are committed to protecting the environment and reducing the footprint of our business operations through proper waste management and increased energy efficiency. We understand the impact of our operations and recognize that our environmental commitment dovetails with our vision of improving healthcare affordability and accessibility. In this report, we share the baseline of our greenhouse gas (GHG) emissions (scopes 1 and 2) and we reiterate our commitment to reduce our environmental impact.

We understand that progress takes time and are actively moving forward on our multiyear ESG journey. We are committed to transparent disclosure, data-driven goal setting and doing our part to drive results. As you read through the pages that follow, we want you to share in the energy and passion we feel as we carry out our mission to bring genetics into mainstream medicine to improve healthcare for billions—one which is never more important than it is now, as humanity’s health depends on it.

In good health,

Sean Emerson George, Ph.D.

CEO and Cofounder



Our relentless focus on healthcare for humanity is the most material aspect of ESG impacting the success of our business both domestically and internationally.



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Invitae is a leading medical genetics company, delivering genetic testing services that support a lifetime of patient care—from inherited disease diagnoses and family planning to proactive health screening and personalized diagnosis, treatment and monitoring of cancer—combining genetic and clinical information to drive research and improve health decision-making. By pioneering new ways of sharing, understanding and applying genetic information and relevant clinical phenotypic information, we are transforming the field of genetics from a series of one-time, one-dimensional queries to a lifelong clinical dialogue with our genes using complex analyses and information management to improve medical decisions and optimize health interventions.

Genetic testing involves carefully investigating changes in the DNA sequence in our genome, which contains important information relevant to our health and wellbeing. Invitae’s medical-grade genetic testing analyzes individual genes to find DNA sequence errors that can potentially lead to disease. Our service includes the option for providers and patients to speak with genetics experts to better understand test results that help guide health decisions. We also are creating/managing a platform that enables patients to gather their clinical and genetic information in one place and under their control, allowing them to get better care and help drive research that improves health outcomes for all.



Four Core Principles

We were founded on four core principles:

1

**Patients should own
and control their own
genetic information**

2

**Healthcare
professionals are
fundamental in ordering
and interpreting genetic
information**

3

**Driving down the price
of genetic information
will increase its clinical
and personal utility**

4

**Genetic information is
more valuable when
shared**



Business Overview

We are focused on making comprehensive, high-quality genetic information more accessible by lowering the cost of genetic testing, utilizing a testing and clinical information delivery platform that is accessible to patients throughout their lives, enabling a growing network of partners to increase the utility of genetic information across the healthcare continuum and, ultimately, managing that information on behalf of our customers to enable improved health and the advancement of medicine around the globe. Over the past several years, we have focused on international expansion and in 2021 over 12% of our revenue was from outside the United States. As our business evolves, we expect that our business will move, and with it the industry, through three stages:

Evolution of the platform



1

Genetic testing:

making it more affordable and more accessible with fast turnaround times. We believe there is a significant market opportunity for high-volume, low-cost genetic testing that allows us to serve a large number of customers.



2

Genome network:

sharing genetic information on a global scale to advance science and medicine. We are focusing our efforts on partnering with patients, family members, healthcare professionals, payers, industry professionals, researchers and clinical trial sponsors to advance the development of our genome network.



3

Genome management:

building a secure and trusted genome management infrastructure. By providing a centralized hub for patients to collect, own and share their genetic and health information over the course of their lifetimes, we empower patients and their caregivers to make better healthcare decisions and create a powerful patient-consented dataset to drive research for the advancement of medicine and to improve outcomes for all.



In 2021, we made substantial progress in evolving our business from a wide range of testing products to information services and the management of data. The addition of Ciitizen and Medneon, along with other recent healthcare technology acquisitions, paved the way for the development and launch of an enhanced personalized data platform for all people, which will enable an entirely new, patient-owned and -controlled open network of genetic and clinical information applied to the betterment of their health and that of their communities.





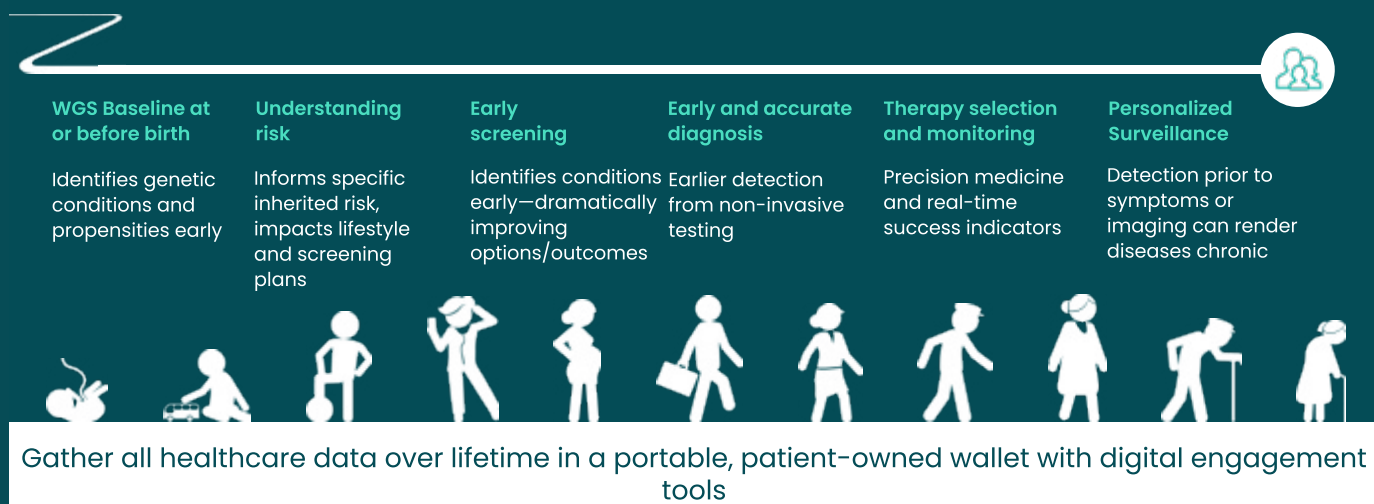
Purpose-Driven Mission to Improve Healthcare for All

Unlocking those answers to make medicine more personalized requires highly specialized, multidisciplinary collaboration. Our platform is setting the standard for the expanding medical genetics industry by harnessing the power of advanced technologies—robotics, artificial intelligence, machine learning, software engineering—and world-class genetics expertise.

We believe in a new reality—the Era of Molecular Medicine—that will drive improved Healthcare for Humanity. The ability to identify those at risk for disease, to detect and diagnose the onset of those diseases earlier, to use that information to guide preventive measures or targeted treatment, and to monitor the success of that treatment will be the standard of care for individuals throughout multiple stages of their lives. In each of these four applications, fundamental drivers of adoption over the next two to three years are quickly coming into focus and will create the need for our services that we believe far eclipse the ability of today's system to better treat or even outright prevent disease.

Era of Genome Management

Collecting/Providing information services that inform healthcare throughout life





Our Approach to Environmental, Social and Governance (ESG)

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ESG Oversight

Our Board of Directors (Board) and Management Team recognize the importance of solid governance, environmental stewardship and social responsibility to our long-term business strategy and shareholder value creation. While the entire Board engages on ESG matters impacting our business, the Board has assigned the Nominating and Governance Committee (NGC), in accordance with its [charter](#), oversight responsibility of our company-wide Corporate Social Responsibility (CSR) and Environmental, Social and Governance (ESG) strategy, initiatives and policies. Additionally, an NGC board member with ESG expertise acts as a liaison between the Board and our Management and ESG teams.

In June 2021, our former Chief Financial Officer stepped into a newly created role as Chief Sustainability Officer. In this position, she leads the ESG Steering Committee and focuses exclusively on advancing our multiyear effort to improve our ESG capabilities in all areas of our business. Our Steering Committee is a cross-functional group comprising leaders from ESG, People & Culture, Facilities, Finance, Legal, Medical Affairs, Operations, Global Supply, Employee Health & Safety, Product and Tech, External Affairs, and Communications and Commercial that meets monthly to guide and implement ESG strategy.

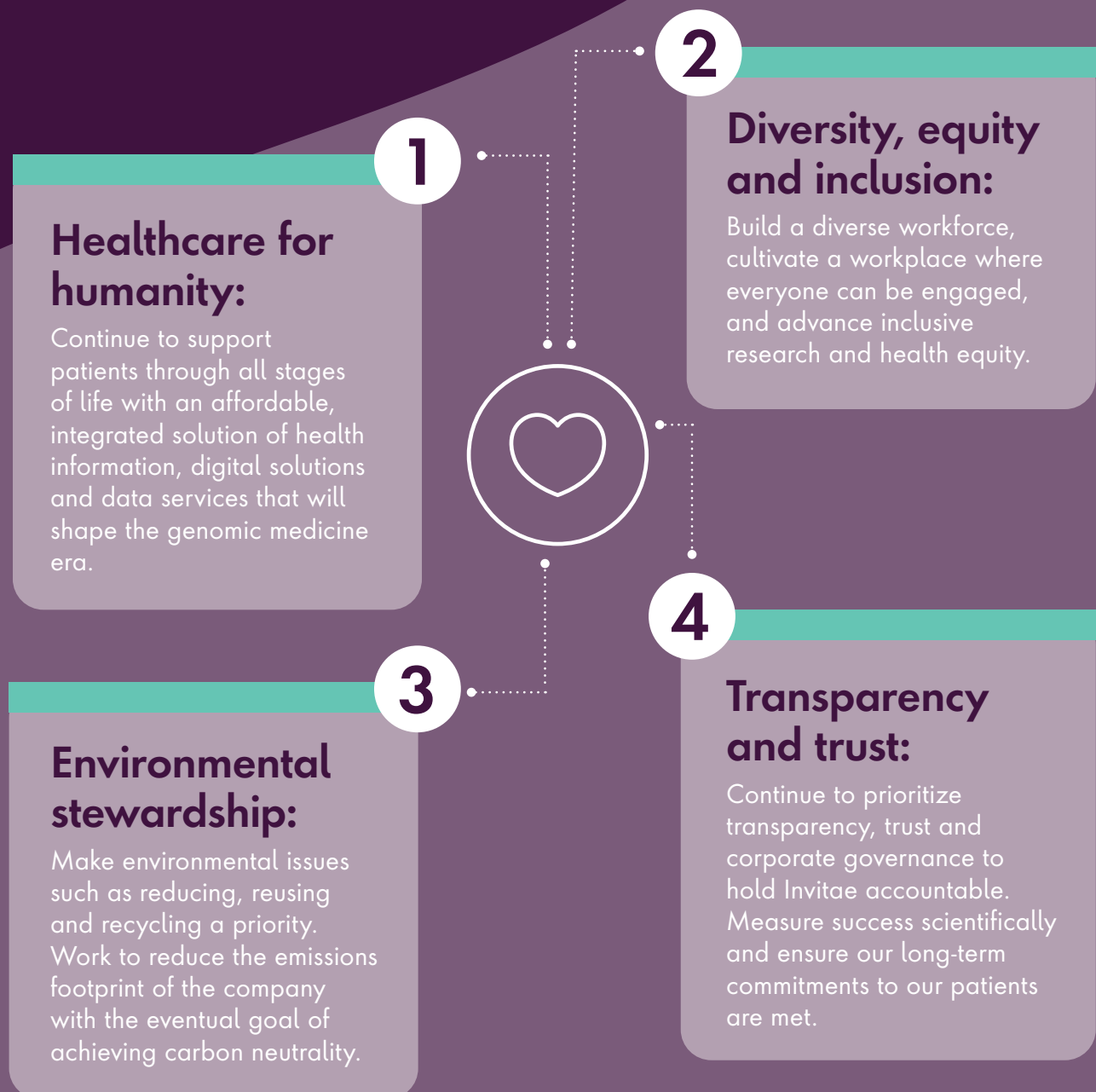
The Board aims to continue strengthening its commitment to the oversight and integration of ESG within our long-term strategy and risk management. With involvement from our Board, leadership team and employees across numerous functions, Invitae continues to work toward strengthening the policies and procedures that operationalize our commitment to oversight and integration of ESG in our strategy and risk management practices. The ESG team provides updates to the Board quarterly.





Our ESG Tenets

This core set of tenets represents the principles that direct our actions, enable us to make decisions at all levels of the organization and form the foundation of our sustainability efforts.





Healthcare for Humanity

Invitae provides genetic information that guides decisions for patients facing a vast array of health questions, from ultra-rare diseases and starting a family to deciding best treatment options once diagnosed with cancer. Why genetic testing? We believe everyone should have access to their genetic information so they can make informed health decisions, such as taking early action to prevent the onset of disease, obtaining optimal treatment for rare inherited disorders, having access to alternate reproductive choices or receiving targeted therapies for cancer. Our mission is to bring this comprehensive genetic information into mainstream medical practices as an affordable and accessible standard of care to improve overall healthcare quality for billions of people globally.



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Access to Affordable Healthcare

Healthcare for Humanity is rooted in our efforts to not only advance the utility of genetic testing, but also to improve affordable access for patients globally. We aim to effectively execute this mission by lowering costs, breaking down testing barriers, building genetics awareness with providers and getting information to patients and their families.

Lowering Costs

Our business model is aimed at aggregating the world's medical genetic tests into a single service with higher quality, faster turnaround times and lower patient expenditure. We strive to make high-quality genetic testing affordable and accessible to everyone who can benefit.

There are a number of programs designed to make our testing affordable, thus reducing the cost barrier to patients. We have partnered with insurance providers to ensure our testing services are classified as “in network” with all major US health insurance plans, covering approximately 315 million patients, including Medicare, all national commercial health plans and Medicaid in most states.

For those who do not meet coverage criteria, or for whom a specific test is not covered by insurance, we offer a reduced patient-pay price. Our [pricing practices](#) are transparent and patient pricing is available upon request. For those who have difficulty paying, we have a [patient assistance program](#). We also offer flexible follow-up testing options to expand to more genes at no additional charge, subject to certain conditions.

We also offer numerous no-charge testing programs to patients who meet eligibility criteria. We have partnered with various biopharma companies to sponsor many of these programs, in which patients receive testing at no charge and the biopharma sponsors receive certain de-identified patient data. We offer these programs in a variety of clinical areas, including cardiology, immunology, neurology, oncology and urology. At the end of 2021, we had over 150 active programs in our Sponsored Testing, Clinical Trial Testing and Clinical Trial Recruiting areas. During the year we conducted over 100,000 tests under our sponsored testing programs and found nearly 16% of those tested had a positive result, information that helped equip patients for the next step on their healthcare journey. For our sponsored testing programs, see [link](#).



LOWERING COSTS



BILLING TRANSPARENCY



BREAKING DOWN BARRIERS



BUILDING GENETICS AWARENESS AND ACCESS



GETTING INFORMATION TO PATIENTS AND FAMILIES



Billing Transparency

We aim to be transparent with health providers and patients about pricing and billing practices. Our patient self-pay price is a reduced price for the uninsured, based on a discount from the listed price. We ensure our coding and billing are correct, adhere to the Centers for Medicare & Medicaid Services (CMS) National Correct Coding Initiative policy manual, and reflect the services provided at the most appropriate reimbursement rate.



Breaking Down Barriers

We explore alternative delivery methods to bring genetics to mainstream medicine at scale, making genetic information an accessible and affordable part of routine medical care for all patients. Our web-based clinical chatbot app, named Gia (Genetic Information Assistant), is designed to simulate conversations between patients and their healthcare professionals regarding various hereditary disease risks. A retrospective [study](#) looked at two years of patient experience using this digital health tool to identify patients at high risk for hereditary cancer syndromes before routine care appointments. One in four patients screened by Gia before routine care appointments met National Comprehensive Cancer Network (NCCN) criteria for hereditary cancer genetic testing, and 5.6% of the patients who received genetic testing were found to have a pathogenic variant.





Building Genetics Awareness and Access

For most patients, access to genetic testing often begins with their physicians. We work with providers to elevate their understanding of the utility of genetics with educational resources such as webinars, short courses and medical management support tools. We make it easy to integrate testing into routine care.

A key design consideration in developing our Gia offering was the ability to support personal interactions in a diverse population, with varying age groups, languages, cultures, socioeconomic backgrounds, education levels and technological capabilities. By automating genetic education in advance of a patient's medical visit, Gia addresses a key barrier to incorporating genetic testing more routinely into clinical practice. Our Gia offering also contains workflow capabilities designed to simplify physician office functions related to genetic testing, such as the collection of medical and family history, mapping of this history against established guidelines for testing, and assistance in returning results directly to the patient.

Our licensed, board-certified genetic counselors are available throughout the testing process as valued resources to both patients and providers. These experts partner with healthcare providers and aid in interpreting results, as well as answer patients' questions directly. We also streamline the testing workflow to support patients who do not have access to online computers. We believe the future of medicine will greatly advance with further integration and accessibility of genetic testing to improve diagnosis, prognosis and patient care.

Getting Information to Patients and Their Families

We are committed to ensuring that patients get the genetic answers they need. Our mission to improve affordable access to genetic testing aligns with the missions of many advocacy groups. Our partnership approach with these organizations not only builds awareness of the benefits of genetic testing, but also provides opportunities for patients to access affordable options to improve their healthcare, early detection and treatment options. To learn more, please visit our [Patient Insights Network \(PIN\)](#) directory, read how we work to advocate more testing with our [partners](#), or email us at advocacyhub@invitae.com.

Research data is often siloed, hard to track and hard to use, impacting patients and their providers. We are successfully "de-siloing" data. In the rare disease community, it is common for the same individuals to participate in multiple studies. However, those data sources are often isolated and do not "talk to" one another. In a key partnership with the STXBPI Foundation, we have connected unique identifiers between our platform and Simons Searchlight so that academic and biopharma partners can link the two datasets (which offer unique benefits). These efforts reduce the burden on families and help make existing data usable.



IMPROVING ACCESS AND OUTCOMES IN EPILEPSY HEALTHCARE

Why It Matters

Almost 1% of individuals worldwide suffer from epilepsy, a condition that can impair quality of life and cause severe distress for families. Up to 40% of epilepsy cases are thought to be due to genetic disorders, with the highest diagnostic yields in those with early-onset seizures. Identifying the genetic cause of epilepsy can often guide treatment and improve clinical outcomes. Invitae has a multifaceted approach to improving the diagnosis and care of individuals with epilepsy.

What We Are Doing

Improving lives by advancing research to better understand the genetic basis of epilepsy.

Invitae has published [key studies](#) on the utility of genetic testing in epilepsy and the clinical implications of [positive results](#) in over 10,000 patients. Additionally, we presented cutting-edge research at the annual conferences of the American Epilepsy Society and Child Neurology Society, describing patient [outcomes](#) after treatment modifications due to genetic testing results and deep [clinical analysis](#) of the rare SYNGAP1-related epilepsy disorder.

Getting more patients tested and on the appropriate treatments for their conditions.

Our [Behind the Seizure](#) sponsored testing program now has 10 partners and provides no-charge testing for children ages 0 to 8 with one unprovoked seizure. We tested over 10,000 patients in 2021 and 22,000 since the program's inception in late 2016. Read more about the patient perspective from [Naya's journey](#).

Helping patients find a diagnosis early can improve health outcomes. Multiple studies at Invitae have shown that an [early genetic diagnosis of epilepsy](#) allows for quicker intervention, including precision medicine, that can lead to potentially transformative outcomes in patients. For example, genetic testing can [shorten the diagnostic journey](#) by 1-2 years in CLN2 Batten disease and help identify the cause of epilepsy before a patient experiences irreversible neurological regression.

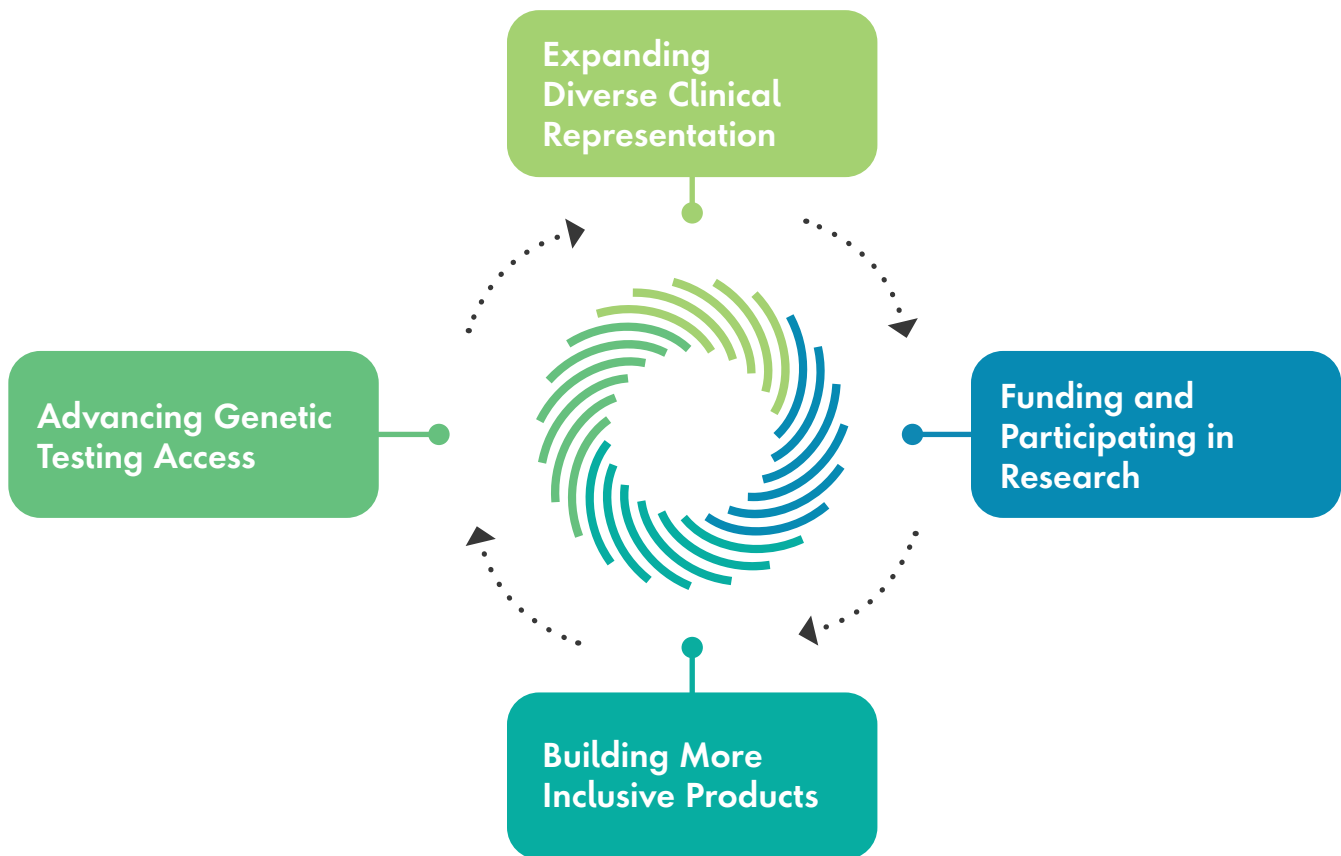
Increasing genetic training and awareness. By working with physicians and patient groups, we educate and broadly increase the community's understanding of genetics and how it can impact their lives and practices. Our team of epilepsy genetics experts has been invited to speak at both international and domestic scientific conferences, patient advocacy symposiums and clinician grand rounds/University speaker series. Some of our recent efforts: [KCNQ2 Cure Virtual Summit](#), [Epilepsy Awareness Day Invited Speaker](#), [European Congress on Epileptology](#), [Brazilian Congress of Neurogenetics](#), [California Neurological Society 2021 Invited Speaker](#).

Enabling patients and their families to get educated, connect, advocate and find trials. The [Invitae Patient Insights Network \(PIN\)](#) is more powerful than a traditional patient registry. It's an online platform where individuals can take surveys, upload medical records, track health outcomes and learn about the latest research and clinical trials. Many of our [PIN network partners](#) connect patients with epilepsy to research, trials and groups to better understand their disease. With Ciitizen, we're accelerating timelines to collect, analyze and publish rich and comprehensive data that improves patient outcomes. Both of these platforms empower patients with epilepsy or other disorders to have a say in how research is conducted and provide patients and families a voice in their care.



Equity in Genetic Testing

We desire to leverage our genetic platform as a force for positive change. A global problem in the genetics field has been the paucity of data from certain populations routinely underserved in the medical community due to a lack of genetic information in both public genomic databases and in medical literature.



Advancing Genetic Testing Access

With our focus on increasing access to genetic testing, both in the US and internationally, we actively identify and overcome barriers to access to care for underserved, and often underrepresented populations. By doing this, we continually further diversify our database and subsequently improve the accuracy and utility of our testing, further improving the value of genetics to underserved patients.

Expanding Diverse Clinical Representation

Through sponsored testing programs, our genetic data is shared with biopharma companies who use the data to guide their drug development pipelines and research potential therapies for genetic diseases. By sharing a genetic database that includes data from a diverse patient population, we help biopharma create drugs and therapies that will ultimately better serve these same diverse populations.

Funding and Participating in Research

When designing our research studies, both internally-derived and external collaborations, we prioritize inclusion of underrepresented populations. We also routinely highlight observed gaps in healthcare outcomes so that future research studies can focus on areas where further work is needed.

Building More Inclusive Products

By leveraging our internal data, combined with sophisticated bioinformatics and artificial intelligence, we continually improve our understanding of both natural genetic variation and genetic disease variation for underrepresented populations, ultimately improving the accuracy and utility of our testing. Additionally, we share our gained knowledge for the greater good of our community. Invitae is routinely the #1 submitter of open access genetic data into the National Institutes of Health's ClinVar database.



Expanding Genetic Testing to Underserved Populations

We actively work to find new ways to reach more physicians domestically and internationally to educate them on the use of genetics in patient outcomes. We have also translated our testing platform into Spanish, Portuguese and other languages, and adapted our tests to accommodate international populations that have different genes and diseases of concern.

Through several research collaborations that we both sponsor and participate in, we seek to generate diverse genetic information to help improve public genomic databases and to publish results to improve the medical literature. We continue as an affiliate member in the [eMERGE Study](#), a five-year National Institutes of Health (NIH)-supported study seeking to test 25,000 patients from underserved populations. We have launched several other domestic and international studies that expand genetic testing access to these groups:

Study	Description
Hereditary cancer collaboration with King Hussein Cancer Center, Jordan	Invitae is collaborating with a cancer center in Jordan by testing patients with solid tumors to advance cancer genetics in Middle Eastern populations. We will compare results among patients meeting and not meeting National Comprehensive Cancer Network (NCCN) criteria for genetic testing. This mostly-adult population may include some pediatric cases.
Breast and prostate cancer collaboration with Dana Farber Cancer Institute (DFCI) and Rwanda Military Hospital, Rwanda	Invitae is partnering with cancer expert Dr. Timothy Rebbeck of DFCI and Dr. Achille Manirakiza from KHF to conduct a study on the prevalence of disease-causing variants in hereditary cancer syndrome genes in affected cancer patients (breast and prostate). This partnership is aimed at increasing the utility of genetic testing within Rwanda and Africa at large.
GEMINI germline-somatic collaboration with Mayo Clinic, Arizona	A study at Mayo Clinic Arizona focused on testing patients with various types of cancer in Native American and Hispanic populations. We will compare results among patients meeting and not meeting NCCN criteria for genetic testing. This study aims to increase the utility of genetic testing within Native American populations.
NHERIT germline-somatic collaboration with Mayo Clinic, Florida	A study at Mayo Clinic Florida focused on testing patients with various types of cancer in Black populations. We will compare results among patients meeting and not meeting NCCN criteria for genetic testing.
African American PROMPT PGS validation study with Chesapeake Urology, New Jersey Urology and Tulane Medical Center	PROMPT PGS is a study of genetic markers that assesses a man's risk of developing prostate cancer. The current study focuses on validating these markers in African American men who have either previously went under or will be undergoing a biopsy due to suspicion of prostate cancer.
Genetic cardiomyopathy collaboration with the University of Texas Southwestern Medical Center	A collaboration with University of Texas Southwestern Medical Center to evaluate and improve the rate of referral for genetic testing in minority populations with cardiomyopathies.



Supporting Genetics Education and Diversity in the Genomics Workforce

Invitae is dedicated to supporting the education of the next generation of the genomics workforce. Since 2014, we have offered hands-on learning rotations for genetic counseling graduate students, mainly partnering with two training programs in the San Francisco Bay Area. In 2021, we launched a formal application process for our rotations, which allowed us to select from a more diverse pool of students, and trained 19 genetic counseling students located across the United States.

We have established programs intended to attract diverse cohorts of students to the genetics industry and to support their training. From our collaboration with the San Francisco Unified School District Career Pathways Program—intended to help San Francisco high school students, many of whom are members of underrepresented groups, gain skills for careers in biotech—to our partnership with Hampton University to expose students from this HBCU to genetic counseling careers, we are working to help expand representation among our future colleagues.

We collaborate with other genetics experts and organizations to have a greater impact on the practice of genetics and to expand the reach of genetics to underserved populations. We have taken an active role in the American Society of Human Genetics (ASHG), the leading professional scientific membership organization for human genetics and genomics researchers in the world, in its diversity efforts. Our Chief Medical Officer has been appointed to the Expert Panel on Historic Injustices and Scientific Racism, which will convene in 2022. We have signed on as a financial sponsor of ASHG's fund for equity in genomics research as an **Impact Partner**. Finally, several of our physicians serve on other committees supporting ASHG's diversity efforts, and on the NIH-sponsored Human Tumor Atlas Network (HTAN) Diversity and Inclusion Working Group.



Beyond the field of genomics, Invitae team members participate in events and conferences that promote and support science, technology, engineering and mathematics (STEM) careers in underrepresented communities, including:

Grace Hopper

the world's largest gathering of women technologists

Girls who Code

working to reduce the gender gap in STEM and Tech

100 Black Men

the nation's top African American-led mentoring organization

Lesbians Who Tech & Allies Summit

supporting LGBTQ, non-binary and trans individuals in and around tech

AfroTech

one of the largest multicultural tech conferences in the United States

Hampton University (HBCU)

student mentorship program



Enabling Patients to Power Research and Better Clinical Outcomes

Invitae is building a one-of-a-kind platform that helps patients take ownership of their clinical and genetic testing records, allowing them to optimize therapy for themselves and pay it forward by supporting research. Through Invitae's Ciitizen platform, the company is supporting communities of patients with breast, rare bile duct and blood cancers, as well as rare neurological disorders by gathering their clinical and genomic information across all the places where they've received care and placing it under the patient's control. This combination of lifelong health history and genetic information creates a powerful tool for patient- and family-centered health decision-making and builds powerful datasets that, with the patient's consent, can transform genetic and clinical discovery. Invitae's Ciitizen platform is already beginning to generate results for patients, including matching bile duct patients to life-extending clinical trials, supporting rapid research into the efficacy of COVID-19 vaccines in blood cancer patients, and supporting development of more effective drugs to treat seizures.



#BlackDataMatters:

Black Breast Cancer & Barriers to Clinical Trials is a comprehensive health equity research study that investigates the deeply rooted barriers to clinical research participation. The overall goal is to change how the breast cancer ecosystem engages Black women regarding breast cancer and clinical trial research, and to strive toward health equity for Black women diagnosed with or at risk of breast cancer. #BlackDataMatters is a collaborative research effort between TOUCH Black Breast Cancer Alliance, Breastcancer.org, Ciitizen, Center for Health Care Innovation and the Morehouse School of Medicine. To date, we have completed two phases of this project, including qualitative interviews with 48 Black women with breast cancer and their family members, and a quantitative survey completed by 257 Black women with breast cancer. The results are currently being analyzed and will be disseminated in a future publication.





Patient First, Trust and Transparency

As we drive our vision toward a new healthcare reality, our guidepost is first and foremost a proven corporate ethos that places the patient first. That North Star has led a strategy that holds patients' access, rights, security and privacy as paramount as we strive to continue to develop a foundation of trust and transparency in everything we do.

Trust is the Foundation of Our Strategy



Patients own and control their data

- Consent and preferences
- Security
- Privacy
- Transparency of usage
- Usefulness to patient and society
- Accuracy

Patient Privacy

Ensuring that people own and control their genetic data has been one of our core principles since inception. We are committed to the privacy and security of all protected health information (PHI) we create, receive, use, disclose and transmit. Our privacy practices are explained within our Health Insurance Portability and Accountability Act of 1996 (HIPAA) Notice of Privacy Practices on our [website](#). Our patients can set internal data use and sharing preferences that are more granular than required by some regulations like HIPAA. Invitae is actively working to better describe how patient data is used and building more awareness around consent preferences.

As a provider of clinical genetic testing services, we are a “covered entity” subject to HIPAA's Privacy Rule, Security Rule and Breach Notification Rule.

Our Privacy and Security Compliance Program is subject to inspection by the Secretary of Health and Human Services (HHS) and the Office of Civil Rights (OCR) for the purpose of complaint investigation and monitoring of our compliance with indicated regulations. We take a holistic approach toward information security with an equal focus on both its critical components—the people and the computing environment—to safeguard and protect customer data. Our Privacy and Security Compliance Program is reviewed and updated annually, including our annual Privacy, HIPAA and General Data Protection Regulation (GDPR) training for all employees. More information is included in our [Governance section](#) of this report.



Quality Care

Behind every sample that arrives for testing is a patient—a patient who needs answers; a patient who may need other tests, other information, or a better understanding of the context of the symptoms they or their family members are living with. Whether parents searching for answers about why their child is having seizures, a grandfather diagnosed with metastatic prostate cancer seeking to know the next step, or a therapeutic developer searching for a genetic basis for a new precision therapy, Invitae provides answers. Connections in our network accelerate the time to a correct diagnosis, inform next steps and help bring therapies to market faster.

We are transparent about the benefits of genetic testing, but we also disclose the detailed limitations of a genetic test and analysis. Our gene-specific results guides make it easier for patients by providing information about specific results, related conditions and next steps. The guides were developed by experts and are based on standard medical management guidelines and published data.

We have a patient helpline, where calls can be escalated to a genetic counselor all the way up to the Chief Medical Officer. Our industry-leading laboratories are equipped with highly advanced technology that delivers accurate and reliable information quickly and at an affordable price. Our commitment to quality also includes testing backed by peer-reviewed studies showing 100% analytic sensitivity and specificity compared to historical hereditary cancer genetic testing laboratories. For more information, please see the [Safety and Quality Management](#) section of this report.



**Patients own
and control
their data**

**Health data
is more
valuable
when shared**



Patient and Provider Satisfaction

We view patient and provider satisfaction as core components of the delivery of quality care.

Net Promoter Score® (NPS) is an externally-recognized metric for patient satisfaction, and we see it as an important measure of our success in meeting our patients' needs. We measure NPS for our patients as well as providers who use our services. We use these scores together to gauge the effectiveness of our efforts to ensure customer satisfaction. Creators of NPS, Bain & Company, suggest a score: above 0 is good, above 20 is favorable, above 50 is excellent and above 80 is world class (given the range of -100 to +100). During 2021, we surveyed patients and providers asking, "How likely are you to recommend us?" We received a score of 84 from patients (19% response rate) and 78 from providers (27% response rate).

We believe that genetic counseling is critical to patients who may need assistance understanding how their test results impact their health and the health of their family members. Therefore, we also examine satisfaction with our genetic counseling service. Our 2021 survey, conducted over a 12-month period ending December 2021, included over 8,500 patients with a nearly 19% response rate. The percentage of respondents who strongly or somewhat agreed with the following statements were:

The genetic counseling session was valuable to me.

97%

My genetic counselor helped me to identify what I needed to know to make decisions about what would happen to me.

96%

I feel better about my health after meeting with my genetic counselor.

94%

We seek to improve our services and offerings by doing surveys and analyzing complaints and feedback. As required by Clinical Laboratory Improvement Amendments (CLIA), we annually survey all clinician customers about their experience with our products and services. Feedback from this survey is shared with the appropriate internal teams to figure out how to improve our services and product offerings. On a more real-time basis, we log complaints received by members of our customer-facing teams when a customer expresses dissatisfaction or identifies where we missed a service-level agreement. Complaints are given a severity score; high-severity complaints follow a prescribed escalation path to ensure rapid remediation. We also monitor customer complaint data, trending information and feedback about product features and share these with the product and operations teams to inform their development plans.



Open-Source Data and Intellectual Property

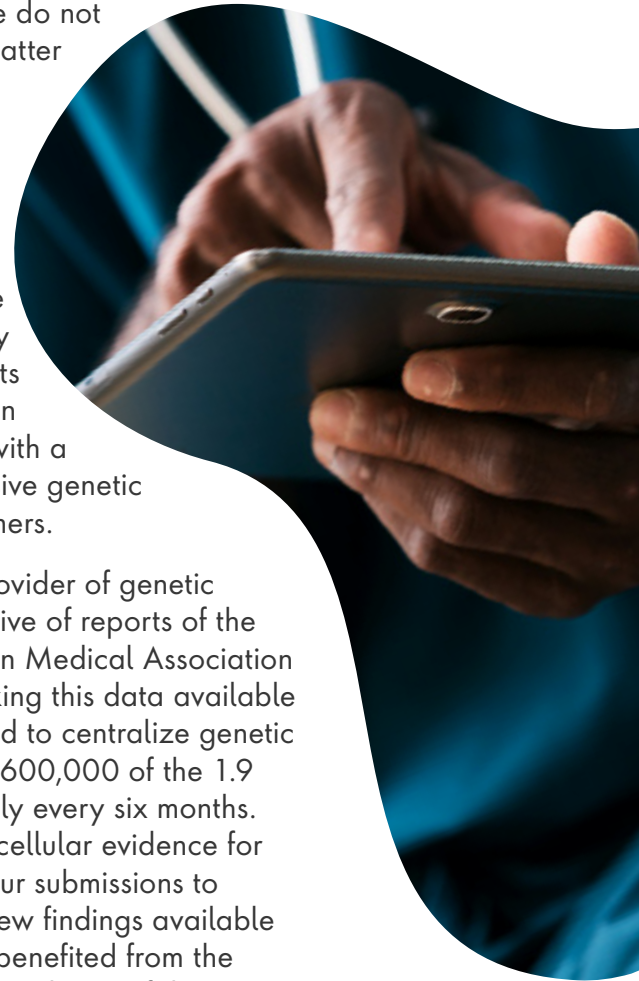
One of our founding principles is that genetic information is more valuable when shared. We believe in the individual's fundamental right to own and control their genetic information. We place a heavy emphasis on both transparency and only sharing patient data with patients' permission to engender long-term trust in our approach.

We believe the practice of patenting individual genes, along with tools and methods specific to individual genes, has impeded the progress of the genetic testing industry beyond single-gene tests and is antithetical to our core principle. We do not believe that naturally occurring biomarkers are patentable subject matter and consistently oppose efforts to amend patent laws to permit patenting of biomarkers or their associations with disease or therapy response. We continue to educate legislators and regulators about these issues through expert testimony and feedback when laws are being considered.

We do not currently have any patents or applications directed to the sequences of specific genes or variants of such genes, nor do we rely on any such in-licensed patent rights of any third party. Unlike patents directed to specific genes, we do rely upon, in part, patent protection to protect technology that is not gene-specific and that provides us with a potential competitive advantage as we focus on making comprehensive genetic information less expensive and more broadly available to our customers.

We put action behind our words, which is why we are the largest provider of genetic information to ClinVar, an NIH-funded, freely-accessible, public archive of reports of the relationships among human variations and phenotypes. The American Medical Association House of Delegates passed a resolution in 2013 explaining that making this data available is a public health need. We concur. The ClinVar database is designed to centralize genetic code information and, as of January 2022, we have [submitted](#) over 600,000 of the 1.9 million records. We contribute variants to the database approximately every six months. Our acquisition of Jungla and its technology generates in silico and cellular evidence for variant classification, and results from these studies are included in our submissions to ClinVar, thereby improving the data's robustness and making these new findings available to all. To date, more than 25% of all patients tested at Invitae have benefited from the evidence we have generated with the functional modeling platform, evidence of the power of this technology. Once variants are in the database, ClinVar laboratories can collaborate and share the evidence—a critical part of laboratory quality control and, by sharing data, we are helping to accelerate progress in the science of genetics.

Finally, we collaborate with researchers across the world in the [Atlas of Variant Effects](#) (AVE) Alliance, an effort designed to characterize variants through powerful new functional assays and make the results freely available to researchers, clinical laboratories and clinicians. Our acquisition of Jungla and its functional modeling platform forms the basis for the work in this alliance.





Government Relations and Patient Advocacy

Policies have not kept up with the advancement of personalized medicine, and we are committed to changing that.

The goal of our policy and patient advocacy efforts is to remove barriers preventing access to comprehensive genetic information to improve healthcare. We support patient-centric policies that enable healthcare access for all patients.

This includes lowering costs, expanding coverage, enhancing healthcare provider engagement, ensuring high quality and creating the infrastructure needed for personalized medicine, especially for vulnerable populations such as Medicare and Medicaid beneficiaries, underserved populations, veterans and children.

In 2021, we continued to focus on federal and California state legislative efforts. We spent significant time creating new alliances and continuing existing networks to collaborate and amplify our voice. This includes approximately \$350,000 in payments to trade associations. For consultative and legislative support, we retain lobbyists, spending nearly \$445,000. We received financial assistance from the government of \$2.3 million in CARES Act funding and de minimus funding from the National Institutes of Health. We made no political contributions to campaigns, politicians, parties, committees or to influence ballot measures. Invitae does not have a political action committee.



Our Healthcare Advocacy Efforts

For our federal efforts, we conducted over 110 meetings with congressional offices, agencies and alliances in 2021 to support advocacy efforts:

- We met with President Biden's Office of Science and Technology Policy (OSTP) to discuss the barriers to precision medicine. On January 31, 2022 the Biden Administration provided [updates](#) on the federal Cancer Moonshot program, which included a recommendation that all cancer patients receive a hereditary cancer test on first diagnosis, as Invitae had recommended.
- Throughout 2021, we supported policymakers on pharmacogenomics legislation and educated on the importance of pharmacogenomics to navigate the opioid crisis, reduce adverse drug events, improve health system performance and address disparities in underserved populations. Invitae supported the introduction of [The Right Drug Dose Now Act](#) (H.R. 6875) on February 28, 2022..
- We supported the [Cure 2.0 Act](#) to improve Medicaid coverage of genetic testing, establish Medicare coverage of pharmacogenomic consultations, provide better support for caregivers, increase diversity of clinical trials, extend telehealth access to support delivery of care to patients who may not otherwise have access to appropriate specialists and build greater pandemic infrastructure ([Support Letter](#)).
- As part of a coalition, we supported the introduction of the [Precision Medicine Answers for Kids Today Act](#) to expand access to pediatric genetic testing for Medicaid beneficiaries.
- We continued to champion streamlined billing and coding of genetic tests to eliminate wasteful spending as well as fraud and abuse.
- We engaged in opposing efforts to enable patenting of biomarkers and their disease associations, which we believe would have the effect of inhibiting research and increasing the cost of diagnostic testing.
- We advocated for telehealth flexibility to address the shortage of genetics experts and ensure patients have adequate access to [genetic counseling](#) and [pharmacist](#) services.
- We supported efforts to improve medication management and reduce adverse drug events for veterans and active military personnel through appropriations language in both the [House](#) and [Senate](#) Appropriations bills. This could grant \$5 million to the Veterans Affairs system to expand use of pharmacogenomics for optimization of medications for veterans, require a report on implementation of pharmacogenomics testing and clinical decision support tools in the Veteran Affairs system and encourage development of a medication optimization plan within the Department of Defense on the feasibility of implementing pharmacogenomic testing.



We have been active in California, which has the potential to act as an early adopter of genetics to improve medical care, providing a model for the federal government and other states. In California, we conducted over 60 meetings with legislative offices and alliances in 2021 in support of advancing our mission:

- We continued to be a testbed for the development of California Department of Public Health's COVIDNet, a public-private partnership for pandemic surveillance.
- We advocated for [improved authority for pharmacists](#) to better care for underserved and rural communities during pandemic crises and beyond, including the ability to order pharmacogenomics testing and health screens for hereditary cardiovascular and cancer.
- We supported bills for implementing a statewide health information exchange, developing a rare disease advisory council and establishing an [Office of Healthcare Quality and Affordability](#).
- We educated legislative offices and agencies on pharmacogenomics, pediatrics and reproductive health genetic testing, which included advocating for Medi-Cal coverage and the creation of pilot studies.





Our People and Culture

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Our People Strategy

Our team is driven to make a difference for the patients we serve. We aim to be a high-functioning and collaborative team, well equipped to attract, acquire, onboard, develop and retain diverse talent and teams while leading culture and change management in support of business objectives. Our People & Culture (Human Resources) Business Partners are embedded within leadership teams to help support our talent strategy throughout our organization.

Total Rewards Philosophy

We aim to create a culture where our employees thrive and innovate at scale. We encourage an environment where employees are empowered to speak up, try new things and make decisions that push us forward. We provide all employees with opportunities to grow and advance, supported by flexible work hours and paid time off (non-accrual), the ability to work remotely for many roles and the satisfaction of doing meaningful work.

We offer a competitive total rewards package, which includes base compensation, incentive compensation, equity, healthcare coverage, 401(k) (with a partial match) and a broad range of other benefits, such as:

- Health, dental, vision, short- and long-term disability, and basic life insurance coverage
- Paid time off, holiday pay, generous parental leave
- Mental health support, fertility and adoption support, critical illness insurance, accident insurance, public transit/commute reimbursement and an with employee assistance program.

Our generous parental leave benefits are offered to new parents. In 2021, over 99% of employees taking a parental leave returned to work following their time off. This past year, we introduced a new health vendor, Carrot, which provides fertility and adoption benefits for our US employees as well as most of our global employees. Additionally, Invitae has an employer-sponsored testing program, which provides employees and their covered dependents access to all Invitae genetic testing at no cost.

Performance Management

In keeping with our commitment to create a differentiated, equitable place to work, we developed our own performance management system unique to our culture. Everyone, including the Management Team, can give and receive continuous feedback regardless of seniority, experience or level. Our performance management framework includes quarterly reviews with a combination of performance assessments and professional development discussions with managers. Leads are provided additional learning opportunities to develop their management and leadership skills.

A new mental health benefit launched in 2021 with Spring Health includes confidential behavioral health screenings, decision support guidance, case management assistance and telehealth for behavioral health.



Diversity, Equity and Inclusion

Ensuring we are doing what we can to address inequality is not separate from our mission; it is essential to it. This begins with us. We are committed to ensure equitable representation, engagement and advancement of all employees, especially those from historically underserved and disenfranchised communities.

Our DEI Mission and Strategy

As we build a diverse workforce, our vision is to cultivate a place where we all belong. Our Diversity, Equity and Inclusion (DEI) mission is to engage, develop and retain talent by fostering community, providing education and support, and advancing inclusive research and health equity globally. We have a dedicated team focused on driving this effort forward.

Our DEI strategy is to weave rich DEI programs, tools and resources into the fabric of Invitae. These initiatives are driven by objectivity, data integrity and accountability. They ultimately inspire decision-making that is more representative, fair and empathetic.

Amplifying DEI at Invitae

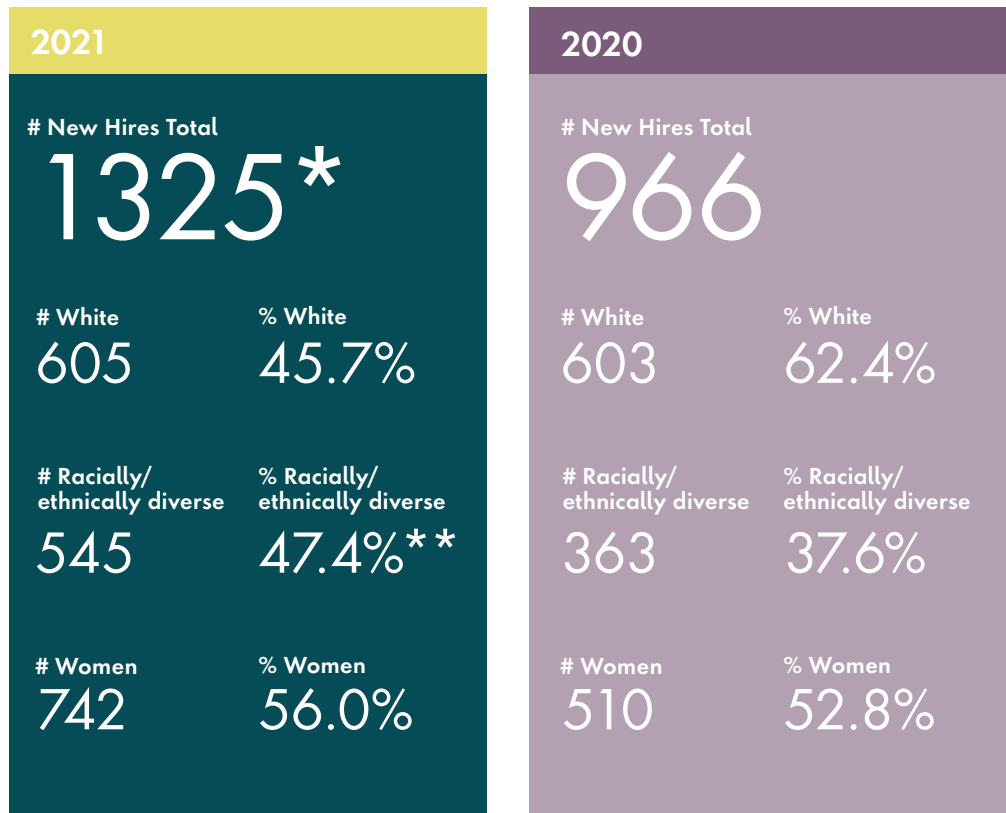




Diversity Recruitment Strategy

Building a diverse workforce starts with diverse new hires. From using Textio, an industry-leading artificial intelligence (AI) tool that ensures job descriptions have neutral language that speaks to candidates across all backgrounds/genders, to expanding our recruiting systems to reduce bias in recruitment stages, we are investing in technology and updating our processes to support data-driven, inclusive practices and to build consistent, people-oriented candidate experiences. See [Supporting Genetics Education](#) above.

New Hires



* Includes new employees who joined via acquisitions.

** Total denominator does not include those who did not self-identify race/ethnicity (175).



Employee Diversity Metrics

As part of our commitment to ESG, we are sharing our employee diversity demographics contained in our 2020 EEO-1 filings as certified in 2021, covering a snapshot of our workforce between October 3, 2020 and October 15, 2020. Our 2021 EEO-1 summary filing is located [here](#). The data includes demographic detail by race/ethnicity, gender and job categories by facility location. The report also contains the previous year's totals by race/ethnicity, gender and job categories. This information is a critical baseline of diversity metrics that we have used as a starting point to assess ways to reduce barriers that may be preventing certain groups from being hired, progressing or exiting Invitae. Our Talent Acquisition and Learning and Development programs, initiated in 2021 and carried into 2022, address some of these findings.

Our 2021 diversity demographics, which are based on our payroll systems and individual self-identification, will form the starting point for our 2021 EEO-1 filing, expected to be submitted in the spring of 2022. We set aggressive goals for 2021 that we did not fully meet. That said, it has helped us to refine our goals for 2022: In addition to looking at our recruiting targets, we will also focus on our efforts on ensuring that these groups have a sense of belonging at Invitae, which will include launching our inaugural belonging survey. This will help us identify areas of focus to align with our recruiting goals.

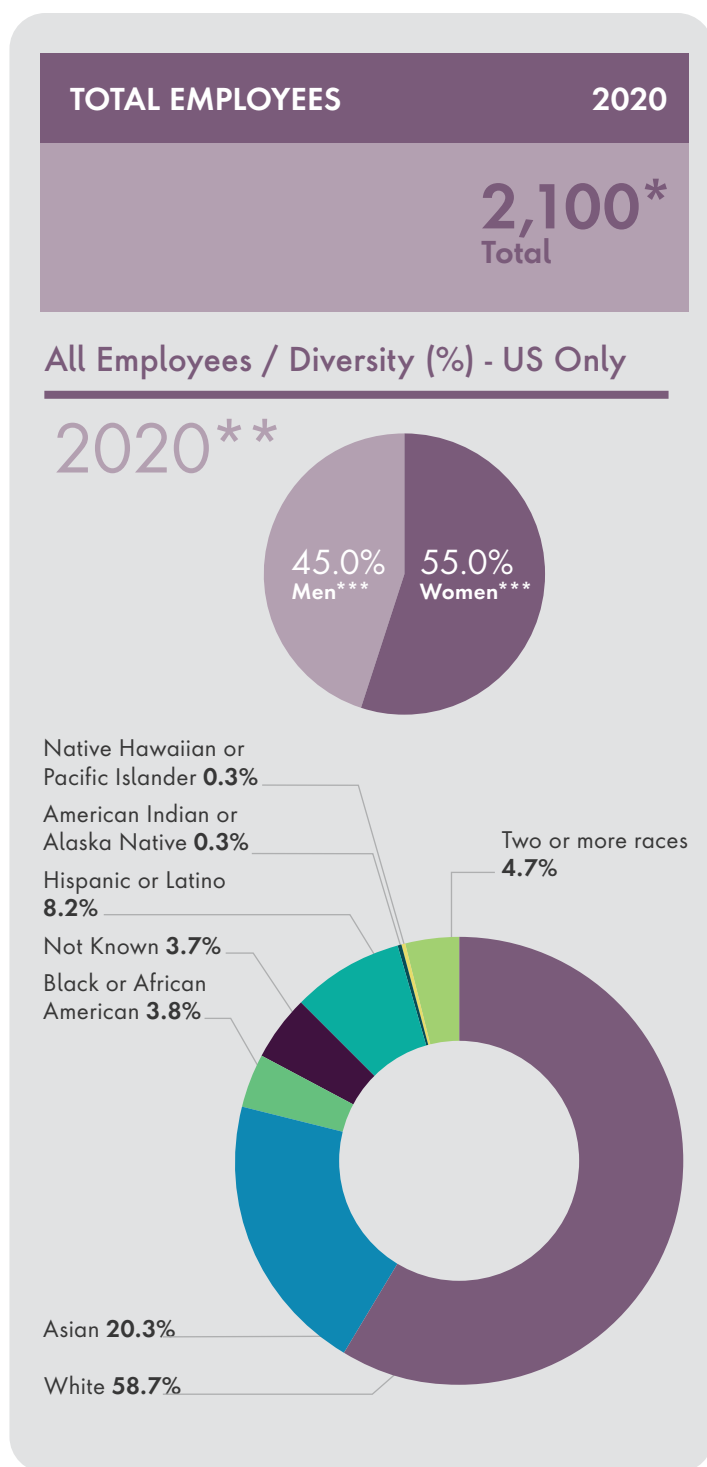
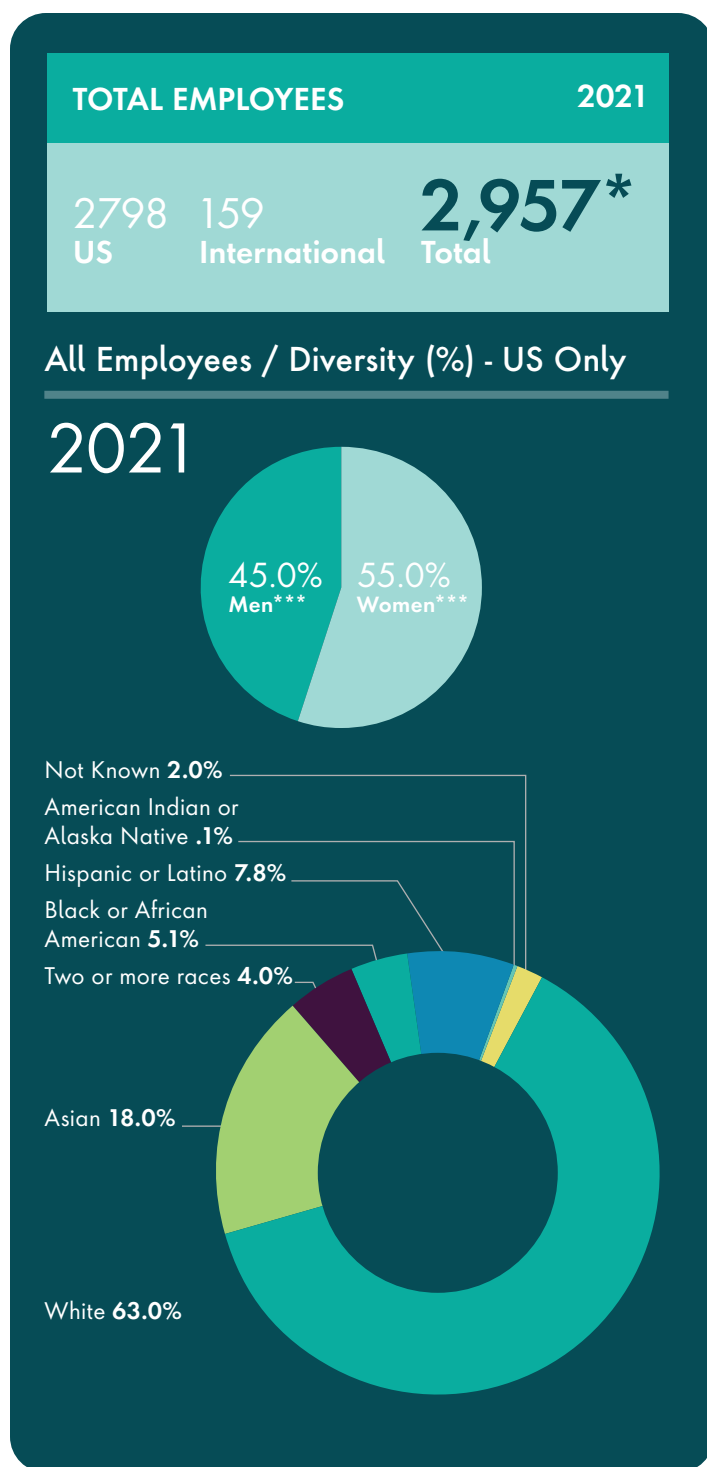
Our turnover rate was higher in 2021 than anticipated due to general market factors, COVID repercussions and the integration of several acquisitions as we rationalized our workforce to execute on our 2021 and 2022 plans.

DEI transparency is important to us at all levels of the organization, starting with our Management Team, which is 25% women and 75% male. 37% of our top level management are people who identify as non-White.





2021 Diversity Metrics as of December 31, 2021



*Total numbers for 2020 and 2021 include Invitae and Legacy Archer combined.

** 2020 diversity numbers do not include Legacy Archer, acquired in the fourth quarter of 2021. They are included for 2021.

*** Non-binary and gender non-conforming (GNC) individuals are not currently identifiable by our self-reporting payroll system where these metrics are derived.



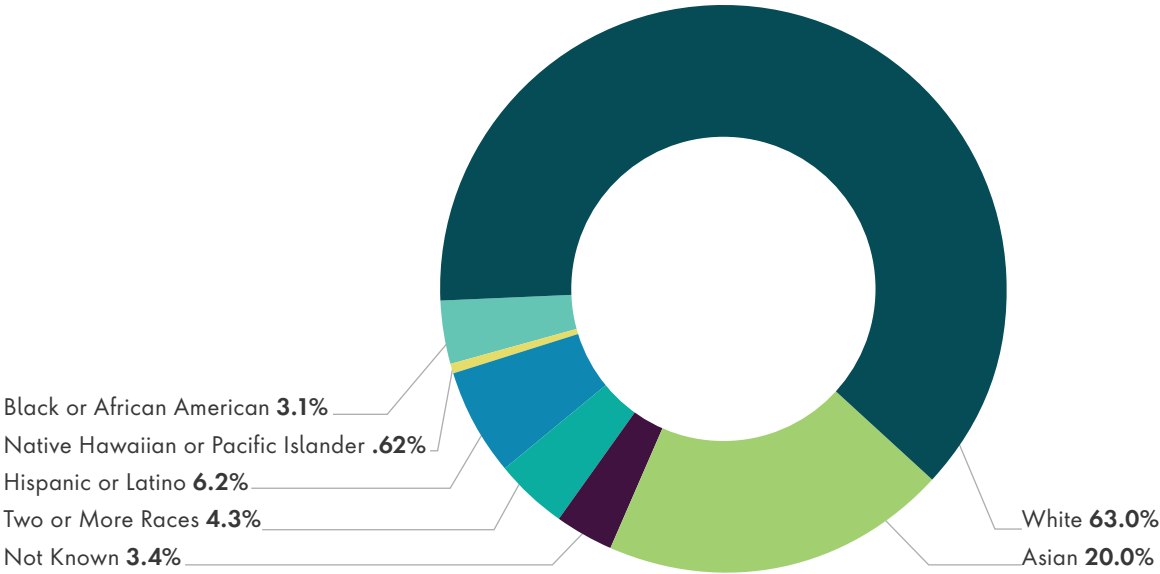
2021 Diversity Metrics as of December 31, 2021

Turnover rate (total, all employees)
(Diversity Breakdown (US only))

2021

14.8%
% Total turnover

52% Male / 48% Female
% Total turnover by gender



2020*

14%
% Total turnover

50% Male / 50% Female
% Total turnover by gender

* 2020 numbers do not include Legacy Archer, acquired in the fourth quarter of 2020. 2021 numbers do include Legacy Archer.



DEI Awareness Training

We elevated our talent management capability by incorporating DEI to create a workplace where it feels safe and natural for employees to stretch, rebuild and evolve professionally and personally. We train our employees on Managing Unconscious Bias, which is a foundational program on how to address bias in the workplace and provide tools to engage in equitable decision-making and build an inclusive culture. In 2021, we rolled out an additional DEI workshop series, Building Allyship, which is a framework for how we can all be allies in the workplace and practice an ongoing commitment to taking intentional, courageous action to promote equity and advance a culture of inclusion at work.

Employee Resource Groups

As our team grows, we want to remain connected to each other in meaningful ways. In 2020, we officially launched Employee Resource Groups (ERGs) as an avenue for employees to create stronger bonds with each other and join together in the workplace based on shared identities and life experiences of individuals from historically underrepresented, underserved and/or disenfranchised backgrounds.

In 2021, we continued building the foundation for our ERG program. We launched two new ERGs (Women in Healthcare and Genetic Counseling at Invitae), incorporated ERG leadership as a factor in our performance reviews and hosted our inaugural ERG Leads Retreat to support strategic planning, professional development and team building.

Today, 20% of employees are members of one or more of the nine active groups.

BlackGenX

BlackGenX is an ERG that exists to support and uplift Invitae employees who identify as members of the African diaspora.

Latinx

The Latinx ERG exists to support individuals who identify as Latinx by openly discussing topics integral to the Latinx identity, such as colonization, immigration, and language.

Vets-In-Genetics

Vets-in-Genetics is an ERG that serves as an information and support conduit for Invitae employees called into service or who have family members serving.

Genetic Counseling at Invitae

The GCAT Invitae ERG is an ERG that exists to cultivate a community for those interested and/or involved in the field of genetic counseling.

Peer Soul Support Team

Peer Soul Support Team is a mental wellness ERG that consists of employees that are passionate about dismantling the shame around mental health illnesses and normalizing mental health in the workplace.

Women in Healthcare

To support and empower each other for growth both personally and professionally, to help address unconscious gender bias in the workplace, and to support women and young girls to achieve their goals both inside Invitae, across the industry, and out in the community.

InvitASIANS

Invitasians is an ERG that exists to celebrate the cultural differences and similarities within the Asian and Pacific Islander diaspora.

Rainbow Connection

Rainbow Connection is Invitae's PRIDE ERG which provides a safe space for LGBTQIA+ individuals and allies to create, share, and foster connections internally and externally.

Women in Tech

Women-in-Tech ERG aims to cultivate an inclusive environment that supports and encourages women and anyone who identifies with a marginalized gender who are interested in coding at any level.



Key efforts of these groups impact not only our employees, but the patient populations we serve. For example, our LGBTQIA+ group, Rainbow Connection, spearheaded an effort to ensure our test requisition forms were inclusive for our trans and gender non-conforming (GNC) patients. Invitae modified the “sex” category from “biological sex” to “sex assigned at birth” and an optional “gender” category. We also provided self-service access to patients to allow them to edit/update their gender identity in our patient portal, allowing patients who had received testing prior to our updates to benefit from this new feature. These changes in language are the result of feedback from employees and also patients, whom we engaged during the design phase of this effort, ultimately ensuring we are providing inclusive services for all.

At Invitae, our ERGs aim to serve three basic purposes: community, learning and service.

2021 KEY EFFORTS:

BlackGenX

In efforts to elevate Black voices at Invitae and beyond, BlackGenX brought on a management team sponsor from the Invitae c-suite, Chief Operating Officer Ken Knight. Ken provides mentorship, allyship and strategic development to support the alignment of ERG priorities with the broader company mission.

Genetic Counseling at Invitae

In celebration of Genetic Counselor Awareness Day on November 4, Genetic Counseling at Invitae hosted its inaugural Genetic Counseling Awareness Week, which included an info session on Invitae’s employer-sponsored genetic testing benefits, a “Directiveness in Modern Genetic Counseling” webinar, genetics-themed trivia and an “Ask a GC” panel discussion.

InvitASIANS

InvitAsians hosted a fireside chat with the director (Bao Tran), producer (Al’n Duong), and lead actor (Alain Uy) of the 2020 American comedy-drama “The Paper Tigers” to discuss AAPI representation in pop culture and how those depictions carry over into everyday behaviors and interactions.

Latinx

One focus area for Latinx in 2021 was helping to make Invitae more accessible to Latinx communities. One way that Latinx achieved this was through a partnership with our LATAM marketing team to provide more accurate Spanish translations in Invitae flyers, brochures and technical glossaries.

Peer Soul Support Team

In celebration of Mental Health Awareness Month, PSST hosted Invitae’s inaugural Mental Health Awareness Week, covering topics such as imposter syndrome and nonviolent communication, and held more active events such as meditation, mindful morning movement and midday stretch breaks.

Rainbow Connection

Feedback from Rainbow Connection members resulted in the Patient Gender Identity Initiative, a project that involved changing our gender category in our order forms from “biological sex” to “sex assigned at birth” and the addition of an optional gender category, making the Invitae test order process more inclusive for our gender non-conforming patients.

Vets-In-Genetics

In 2021, the Vets-in-Genetics ERG embraced the ‘pay it forward’ mentality and initiated a partnership with Homes For Our Troops (HFOT), an organization with the mission to build and donate specially adapted custom homes nationwide for severely injured post-9/11 veterans. Invitae covered travel and accommodations for five Vets-in-Genetics members to participate in the Jupiter, FL project for SGT Justin Callahan and partnered with HFOT to be a flagship sponsor during the project’s volunteer day.

Women in Healthcare

Women in Healthcare launched a monthly book club that engages Harvard Business Review’s On Women in Leadership series to create a safe place within Invitae for all women to share both their challenges and their triumphs in the workplace.

Women in Tech

In honor of the December season of giving, Women in Tech launched a campaign to raise \$500 to support Girls Who Code. At the completion of the campaign, the group raised \$638.



Employee Engagement

In 2021, we launched several new employee engagement initiatives to build and maintain our culture as we scale and grow our business.

We now have an Employee Experience team that works in close partnership with our DEI team and is focused on building a collaborative, supportive and inclusive culture through a variety of engagement initiatives. We launched our “Inside Invitae” intranet webpage with our latest corporate news and issue weekly, company-wide communications that celebrate employee milestones and recognitions, as well as healing circles to support our Invitae community through challenges that directly impact them (e.g., local mass shootings, natural disasters, social injustice, etc.).

We also host a variety of employee forums to bring our employees together with senior management to learn the current status of our business operations, build our collective purpose-driven culture and discuss areas of employee concern. These sessions are attended by teammates from throughout the company, including active participation from members of our management and extended leadership teams. For example, we host biweekly all-employee meetings for patient stories and live “Pulse Questions” with our CEO, and also employee-led fireside chats that provide a safe space for honest conversation about difficult yet important topics like global diversity, imposter syndrome and mental health.

Employee Surveys

As part of our commitment to data-driven decision making, we conduct a monthly “Morale Survey” that asks our teammates three questions: how they feel about the company’s direction, what’s going well and what’s not going well. We’ve been asking these questions consistently for several years so we can quickly identify trends as they emerge and inform management decision-making. We also initiated quarterly team surveys to gauge how employees feel about the effectiveness of their teams and the identification of “helpers” and “blockers” to cross-functional success. Our leadership teams get feedback from these surveys regarding manager effectiveness, as well as annual updates about the health of our culture to support continuous improvement. Our surveys have the option for employees to escalate their comments to People & Culture (HR) to address and follow up. We will use 2022 to understand trends and start to pilot solutions to improve morale and engagement.





Learning and Development

Our talent development strategy is anchored in our corporate mission, “Our Why.” Namely, we strive to develop our workforce to live our leadership principles, which equips and positions our team to execute on our Mission.

Learning & Development Approach

We invested nearly \$2 million and tracked over 24,000 hours in our Talent Learning & Development program during 2021 in order to provide a wide range of development content across an assortment of learning experiences. Our efforts focus on 70% experiential learning, 20% managing relationships and 10% formal development. All of our employees are enrolled in both mandatory and optional learnings to continue their personal career development.

Experiential Learning

Stretch assignments
On-the-job & project-based learning
Job shadowing

70%

Managing Relationships

Coaching
Mentoring
Communities of practice to share knowledge and expertise

20%

Formal Development

Courses and workshops

10%



Leadership Program

Invitae's Leadership Principles were introduced in January 2021. These 10 principles capture what we have found to be critical skills and observable behaviors that best help our team deliver results. The Leadership Principles link all talent processes, including hiring, talent development, differentiating performance, assessing potential, building a leadership pipeline, maintaining a strong leadership bench and succession planning.

A key 2021 priority was to provide programs focused on developing leaders across our business, at all levels and in all departments. The result was our inaugural Leading@Invitae New Leaders program where new leaders acquire a deeper understanding and competence in the critical skills and behaviors outlined in our Leadership Principles. The program is facilitated by Invitae's own senior leadership and offers opportunities for community-building and peer learning. The program now runs twice annually, welcoming and integrating new members of Invitae's extended leadership team, and over 200 new leaders participated in the program during our first year.

Based on the findings of a skill gap-needs analysis, we developed and began offering weekly workshops that aligned with our Leadership Principles and mission. Team-based workshops included: Giving and Receiving Feedback, Emotional Intelligence and Communication Skills, Influencing without Authority, Conflict Resolution and Team Dynamics, and Compassion Fatigue. Also, based on consultations with leaders, the Learning & Development team organized customized team development and coaching interventions, bringing in coaches to facilitate conflict resolution, goal setting, vision alignment, strategy development and team building.

Aware
Calm is contagious
Courage
Curiosity
Improve & Grow
Ownership
Passion
Swift Execution
Team
Vulnerable



Mentorship Program

In April 2021, the Learning & Development team introduced the Leading@Invitae Mentorship Program, which provides both mentees and mentors a focused opportunity for networking and learning experiences through one-on-one mentoring. Aligned with our Leadership Principles, the program helps participants advance job-related skills, gain cross-team knowledge, advance leadership tools, explore internal career paths and build stronger networks. During 2021, over 200 mentees and over 100 mentors participated in our Mentorship Program.

Internship Programs

In 2021, we hosted student rotational training for those interested in genetic counseling, PharmD and clinical laboratory scientist (CLS) programs. We currently offer candidates in the CGMBS (Clinical Genetics Molecular Biologist Scientist) program a chance to build experience toward becoming a licensed CGMBS with training opportunities in specialized molecular biology diagnostic tests in hospital clinical laboratories, commercial reference laboratories, or research and development for biotech companies. We also increased investments in our 2022 intern program (Invintern), hiring a full-time intern talent manager to expand programs and commit resources to further achieve our talent goals. We will be welcoming our first class of 2022 Invinterns in areas including bioinformatics, software engineering and clinical consultation.

Each summer, we host a student from Duke University's Bioethics and Science Policy master's program for a project-based policy mentorship experience. During the summer of 2021, our mentee evaluated national public health data on the prevalence of cancer and cardiovascular disease in underserved tribal, Hispanic and Black populations in comparison with data on access to genetics expertise. This project identified key states having high prevalence rates of these conditions and that were also suffering from a lack of genetic counselors and medical geneticists. Over the coming years, we will explore strategies to better support these underserved populations, which may include community education, policy changes, innovative collaborations and additional research.





Employee Health and Safety (EH&S)

All employees are responsible for maintaining a safe workplace. We promote, train and ensure employees are following our protocols, rules, policies and practices and are reporting accidents, injuries and unsafe equipment, practices or conditions in accordance with our Code of Conduct and health and safety policies.

Oversight and Compliance

Our CEO and Chief Operating Officer (COO) are Policy Administrators of our Employee Health and Safety (EH&S) program, and our Head of EH&S is responsible for EH&S policy development, implementation and oversight. EH&S policies are reviewed and updated annually as needed.

We are a College of American Pathologists (CAP)-accredited and Clinical Laboratory Improvement Amendments (CLIA)-certified clinical diagnostic laboratory. As a leader in advanced medical genetics, we are compliant with all local, state and federal regulations. We currently conduct quarterly EH&S quality and safety inspections at our two major labs (SF and Irvine).

We have a number of policies and standard operating procedures (SOPs) relating to health and safety, including injury and illness prevention, emergency action, chemical hazard identification and ergonomics. The SOPs are controlled by our Quality Group, reviewed annually and signed off by EH&S, Quality, Facilities and Laboratory directors and personnel. Our health and safety program also includes consent forms, employee safety reports, incident investigations and injury logs.

In 2021, we had zero OSHA recordable injuries or EPA reportable incidents.



Employee Health and Safety Training

All employees are required to complete General EH&S Awareness training upon hiring and annually thereafter. This training incorporates our Emergency Action Policy, which outlines what to do in the event of an emergency. In 2021, we have expanded our EH&S training by adding first aid, cardiopulmonary resuscitation (CPR), automated external defibrillator (AED) and spill response training. These modules are in addition to our injury and illness prevention program, emergency action and fire prevention, ergonomics, emergency contact training and communicable disease (including COVID) training and protocols.

Laboratory Awareness and Hazardous Waste Management Training

Our Lab employees and contractors are required to complete our Lab EH&S Awareness training upon hiring and annually thereafter. Topics covered include areas such as biosafety and bloodborne pathogens (exposure control), chemical hygiene and hazard communication, management of hazardous and medical (biohazardous) waste, and emergency preparedness and response.

COVID-19 Response

We are committed to maintaining and improving the health and safety of our employees throughout the pandemic. Our Enterprise Crisis Management Team along with the EH&S Administrator comprise the steering committee for pandemic response. We have instituted an EH&S Pandemic Plan across the enterprise.

All our production facilities have remained fully operational during COVID-19 as we are considered an essential healthcare provider. When the pandemic hit, we reviewed practices in our laboratories and offices to ensure we took the steps necessary to keep our team healthy and to continue delivering for the patients who rely on our diagnostic testing.

Our response has evolved as the situation has evolved. We continue to require a health questionnaire that all persons must complete satisfactorily before entering our buildings. We follow all guidance from the CDC, OSHA, and Cal/OSHA and make changes when necessary, ensuring the strictest regulation is followed.

In 2021, we maintained a distanced workstation protocol, required social-distancing and maintained physical barriers where necessary. We provided face masks and personal protective equipment and had a “masks required” policy in our facilities. We increased cleaning schedules and followed CDC protocols for healthcare facilities. We will continue to monitor and implement guidance as the pandemic evolves.



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Energy Management

We take our responsibility for environmental stewardship seriously and believe that we must do our part in addressing global climate change challenges. While we are early on this journey, we remain committed to reducing our environmental impact. We aim to integrate sustainable business practices, energy-efficient technologies and eco-friendly products that advance our progress in reducing our carbon footprint, water consumption and waste.

During 2021, we took key steps forward to strengthen our environmental commitment. We established a Green Ambassadors Program (GAP) to coordinate our facility environmental sustainability-related practices. The role of the GAP is to advance our environmental sustainability programs (including carbon tracking), as well as to educate and encourage the use of best practices across sites.

We realize that our effectiveness in executing our environmental objectives begins with understanding our environmental impact and carbon footprint. We engaged a third-party expert to complete an in-depth analysis of our 2020 and 2021 emissions, water and waste data. With this insight, we established a baseline from which to facilitate ongoing measuring, managing and reporting of these factors. This foundation better positions us to improve internal tracking systems, launch eco-friendly initiatives, normalized / carbon intensity metrics, and science-based targets to reduce our environmental footprint over time.



Environmental Assessment

We collected available Scope 1 and Scope 2 data from our offices, data centers and vehicle fleet to calculate our energy consumption and greenhouse gas (GHG) emissions. Office and lab data collected included available electric, gas, water, waste and hazardous waste data. We have also collected available fuel usage data from our vehicle fleet.

Because our office and data center needs can change year-to-year, our carbon footprint can also change. Invitae has made several acquisitions in the past several years, causing significant change to operations and number of locations. To the extent available, we collected 2021 calendar year data from our largest 18 in-scope facilities, including all of our labs. Due to limitations in data availability, not all facilities were included in our data collection.

As we continue our emissions tracking efforts toward science-based goal setting, we will begin to normalize data to enable year-over-year comparisons as we continue to grow and reduce our facility footprint.

Energy Consumption

Energy consumption for our offices, labs and data centers is shown in the table below. Electricity consumption data and gas consumption data are provided where available. Invitae utilizes three data center providers that reserve dedicated servers, cages, cabinets and cloud-based systems to meet Invitae's data needs. One data center is included in the overall calculation of greenhouse gas emissions. Two data centers were not included (AWS, Microsoft Azure) due to contracting requirements that do not permit the disclosure of individual account data. Both Microsoft and Amazon have publicly pledged carbon neutral goals—Microsoft in 2030 and Amazon in 2040—with both additionally pledging to have 100% renewable energy supply by 2025. Invitae, while not permitted to provide data due to non-disclosure limitations, estimates usage of both data centers to be currently less than 10% of the total carbon footprint for Invitae.

Our Offices, Labs & Data Centers	2021	Our Vehicle Fleet	2021
Offices, Labs and Data Centers: Electricity Consumption	7,985 MWh	Vehicle and Fleet Gasoline Usage	243 gallons
Offices, Labs and Data Centers: Gas Consumption	94,123 Therms	Vehicle and Fleet Diesel Usage	957 gallons
Data Center Provider Renewable Energy Purchased	0 MWh		



Greenhouse Gas Emissions (GHG)

We determined Scope 1 and 2 emissions based on the information above. Scope 1 and Scope 2 emissions are considered “direct” and “indirect” emissions, such as mobile source fuel consumption (vehicle fleet) and electricity usage in leased offices and data centers.

Our 2021 calendar year greenhouse gas emissions from our offices, data centers and vehicle fleet were calculated using the GHG Protocol’s GHG calculation methodology and the US EPA’s publicly available emissions factors. US electricity emissions factors are updated using the EPA’s eGRID GHG Emissions Factors (issued February 2021).

Scope 1 Emissions	mtCO ₂ e
Scope 1 Emissions (Stationary Combustion)	500
Scope 1 Emissions (Mobile Sources)	12
Total Scope 1 Emissions	512

Scope 2 Location and Market-Based Emissions	mtCO ₂ e
Location-Based Scope 2 Emissions US	3,007
Market-Based Scope 2 Emissions US	3,071

Total Scope 1 and Scope 2 Emissions by Categories	mtCO ₂ e
Total Scope 1 & Location-Based Scope 2 Emissions	3,519
Total Scope 1 & Market-Based Scope 2 Emissions	3,583



Water Usage

Water consumption data is shown to the right for Invitae office and lab facilities that provided data. 14 facilities tracked 2021 water usage. Water usage is not included in greenhouse gas emissions calculations, but is tracked as part of our ongoing commitment to sustainable business practices.

Invitae’s US Offices and Labs	2021
Offices and Labs: Water Usage	2,840,265 gal

Waste Diversion

We are committed to reduce and divert the waste generated through our operations through recycling, composting, donations and more. Our San Francisco site passed an audit by the City of San Francisco for our 2021 practices.

While we made great strides in expanding the coverage of company-wide waste data, the third-party analysis identified data collection gaps across our operations. Our Facilities Team is applying these insights and learnings to improve our data gathering and waste diversion practices over the coming year to enhance our future waste measuring, managing and reporting processes. Given that our business generates plastic waste during the sample-to-answer process, plastics waste diversion will be a high priority in the coming years.

Paper waste is also an area of focus for us. Our Commercial teams have focused on decreasing the number of customers that are placing orders on paper requisitions versus electronic ordering methods. We continue to dedicate resources toward optimizing Invitae’s Healthcare Provider Portal and in 2021 88% of providers indicated a “positive” experience related to placing orders online, which we continue to refine based on feedback.

Hazardous and Medical Waste

We are committed to responsibly disposing of hazardous and medical waste. These wastes produced by our lab operations are subject to strict regulations and their management is covered by policies and standard operating procedures (SOPs). We track and categorize our hazardous waste by type, volume and how it’s disposed; it represents approximately 14% of our overall waste. Medical waste, 11% of our overall waste, is also treated as a separate stream and we follow strict protocols that meet applicable rules and regulations related to its disposal. See [Employee Health and Safety](#) for additional details on employee training requirements regarding hazardous and medical waste management.



Governance and Our Responsible Business Practices

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Corporate Governance



Board Leadership Structure

Our Board continuously evaluates its leadership structure, taking into account the evolving needs of the business and the interests of our shareholders. The Board reflects diversity in experience, skills, race, ethnicity, age and gender. As of December 31, 2021, 50% of our board members identify as female and 33% as an underrepresented minority. Our Board strives to find directors who are experienced and dedicated individuals with diverse backgrounds, perspectives and skills. Our NGC also seeks to ensure that a majority of our directors are independent under the rules of the New York Stock Exchange (NYSE) and that one or more of our directors is an “audit committee financial expert” under the rules of the Securities and Exchange Commission (SEC). For more information on our Board composition, please see our [Governance website](#) and latest [proxy statement](#).



Risk Management

Our Board is responsible for overseeing the overall risk management process. The responsibility for managing risk rests with the Management Team while the entire Board and specified Board committees participate in the oversight process. Our Board’s risk oversight process builds upon management’s risk assessment and mitigation processes, which include reviews of long-term strategic and operational planning, identified material business risks, Management Team development and evaluation, regulatory and legal compliance, ESG initiatives, cybersecurity, COVID-19, financial reporting, internal risk management and internal controls. Functions elevate and identify these business risks to the Management Team regularly, and on a quarterly basis to the Board.

We have instituted business continuity planning and risk management processes to understand and manage risks related to our operations, both physical and those related to IT. These efforts are led by our IT and Operations groups and are beginning with our labs and sample-to-answer processes. The goal is to develop a formal Invitae Business Continuity Plan based on an enterprise-wide assessment to identify critical business areas and processes that have the potential, if disrupted, to result in a major impact to overall business operations, reputation and/or quality.



Business Ethics and Compliance

Compliance Committee Oversight

Compliance and ethics are critical at Invitae, and these efforts are led by our Chief Compliance Officer. The Chief Compliance Officer (CCO) chairs our Compliance Committee, which apprises the Board of all material and relevant company-wide compliance issues regularly. The committee is responsible for ensuring that Invitae continues to conduct our operations and activities ethically, with the highest level of integrity and in compliance with legal and regulatory requirements. This committee meets monthly to review and report out all material issues by functional groups, and committee members take appropriate actions to resolve issues that arise.

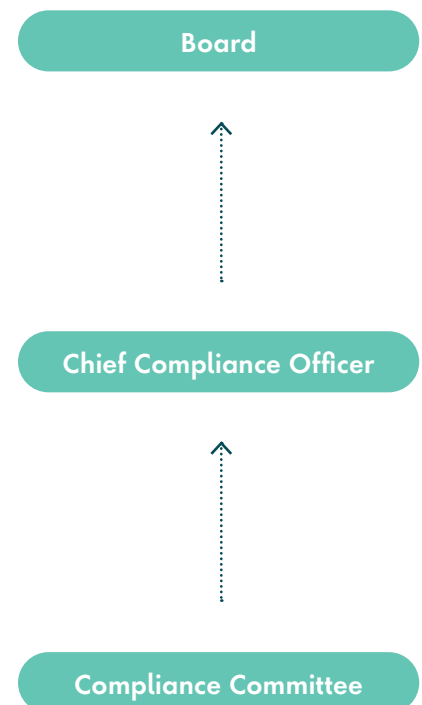
Our Board of Directors has adopted a Code of Business Conduct and Ethics that applies to each of our directors, officers and employees. The Code addresses various topics, as described below.

We are subject to specialized fraud and abuse laws that govern how we deal with our customers (patients and clinicians). The Board through its general risk oversight is ultimately responsible for adhering to these regulations. The CCO and Compliance Committee handle a variety of topics, such as fraud and abuse.

Internal Audit also is responsible for risk oversight and reports to the chair of the Audit Committee and regularly to the full Board.

We comply with various US and international fraud and abuse laws, including the U.S. Foreign Corrupt Practices Act, as well as other regulations by various federal, state and local authorities. As noted below, we do extensive training for our employees on these issues, especially the salesforce.

Our Board believes that our current corporate governance practices demonstrate and promote accountability and advance long-term value creation. The Board has delegated responsibility to the cross-functional Compliance Committee, led by our CCO, to oversee the development, maintenance and monitoring of global, legally sound, practical and sustainable corporate programs intended to satisfy our legal compliance obligations and to foster a culture of compliance with laws, regulations, industry standards and company policies.





Compliance Policies

Our Board has adopted a [Code of Business Conduct and Ethics \(Code\)](#) that applies to each of our directors, Management Team, all employees and contractors. The Code addresses various topics, including:

- Compliance with laws, rules and regulations
- Confidentiality
- Conflicts of interest
- Payments or gifts from others
- Competition and fair dealing
- Health and safety
- Insider trading

Our Board has also adopted a [Code of Ethics for Senior Financial Officers \(Financial Code\)](#) applicable to our CEO and CFO as well as other key management employees addressing ethical behavior, compliance with law and reporting of material information.

The following compliance-related policies are in effect at Invitae and are reviewed regularly and updated periodically with Board or NGC approval, as needed:

- [Code of Business Conduct and Ethics](#) (including Ethics Hotline Policy)
- Interactions with Health Care Practitioners
- Insider Trading and Communications Policy
- Anti-Bribery Policy
- Charitable Donations Policy

The Invitae Employee Manual includes the following compliance-related elements:

- Ethics Hotline Policy
- Policy Against Retaliation
- Conflicts of Interest
- Social Media

Invitae Compliance Training Plan

We provide the following annual education and training to employees related to compliance, fraud prevention and anti-corruption upon hire and annually thereafter:

- Acceptable Business Conduct and Conflicts of Interest
- Data Security and Phishing
- Healthcare Fraud and Abuse
- HIPAA and Privacy
- Federal Corrupt Practices Act and Anti-bribery
- Social Media
- Anti-harassment
- Environment, Health & Safety
- Code of Conduct, Ethics Hotline Policy

Ethics Hotline Policy

We are committed to the highest possible standards of ethical, moral and legal business conduct. Accordingly, our [Ethics Hotline Policy](#) (embedded within our Code of Business Conduct and Ethics) applies to all employees worldwide, including part-time, temporary and contract employees and vendors, and is intended to cover serious concerns that could have a large impact on Invitae, such as actions that:

- May lead to incorrect financial reporting
- Are unlawful
- Are not in line with company policy, including the Code and Human Rights Policy
- Otherwise amount to serious improper and/or unethical conduct

The Ethics Hotline Policy aims to provide an anonymous, confidential hotline for reporting concerns and reassurance of protection from reprisals. Please visit the [Governance](#) section of our website for more information.



Privacy and Data Security

Privacy and Data Security Oversight

Invitae has a robust privacy and data security program. Our Chief Privacy Officer (CPO) leads our privacy program and Chief Information Security Officer (CISO) leads our security program.

Ensuring that people own and control their genetic data has been one of our core principles from inception. We are committed to the privacy and security of all protected health information (PHI) we create, receive, use, disclose and transmit. Our privacy practices are explained within our [HIPAA Notice of Privacy Practices](#) and [Privacy Policy](#) on our [privacy website](#).

As part of risk oversight, our Board oversees patient privacy and data security and receives a quarterly update from the CISO and our General Counsel. Our CPO reports to the General Counsel (who is also our Chief Compliance Officer). The CPO chairs Invitae's Data Use Committee (DUC), which is focused on data usage and sharing activities with the lens on privacy and regulatory compliance based on HIPAA, CLIA, GDPR (General Data Protection Regulation), the Common Rule and other such domestic and foreign rules.

As a provider of clinical genetic testing services, we are a "covered entity" subject to the HIPAA Privacy Rule, Security Rule and Breach Notification Rule. Our Privacy and Security Compliance Program is subject to inspection by the Secretary of Health and Human Services (HHS) and the Office of Civil Rights (OCR) for the purpose of complaint investigation and monitoring of our compliance with these three rules.

We take a holistic approach toward information security with an equal focus on both its critical components—the people and the computing environment—to safeguard and protect customer data. Our Privacy and Security Compliance Program is regularly reviewed and updated to respond to emerging risks.





Certifications and Third-Party Audits

We have a HITRUST Certification for our core applications and facilities, and we are planning to expand the certification for the various acquired companies/applications and peripheral capabilities. We routinely engage with a reputable, objective and licensed third party to perform a comprehensive assessment of our controls, capabilities and programs against stringent standards.

Training and Compliance

We provide annual privacy and security training for all employees. Security training coverage includes Ransomware, Clean Desk Policy, and using multifactor authentication, among others. Privacy team training addresses HIPAA and other privacy laws that apply to Invitae.

We conduct separate and regular phishing training and exercises, and we update the Security Training and Phishing program on an ongoing basis.

Employees, independent contractors and business associates are required to follow our policies and procedures and report any process failures or disclosures. Any employee who fails to follow the policies or procedures will receive a warning, retraining and/or disciplinary action up to and including termination of employment and the notification of authorities.





Safety and Quality Management

Our Quality Management System (QMS) is built on the principles of ISO 9001, 15189, and applicable elements of ISO 13485 and of specific country standards such as CLIA, FDA and the European Union IVDR. Each facility is licensed by the local regulatory agencies and adheres to applicable country-specific requirements. Accreditation is gained through appropriate bodies.

A number of our facilities are accredited by ISO and our 2022 strategy includes ISO 15189 accreditation of our San Francisco, CA, Irvine, CA, MetroPark, NJ, and Sydney, Australia clinical laboratories.

Leadership and Oversight

The Quality Management System is supported by cross-functional leaders with oversight from the Global Quality Assurance Team, which reports into the Chief Policy Officer. Medical Affairs leadership is responsible for the standard of care provided by Invitae clinical laboratories and works with the Leadership team to ensure appropriate controls are in place. The Chief Medical Officer is a key sponsor of our Quality Management System (QMS).

Quality Management Review (QMR) is the systematic process in which our Leadership team reviews key performance indicators that demonstrate the health of our QMS. The review is typically facilitated by QA in partnership with key stakeholders, including: Executive Leadership, Operations, Commercial, Medical Affairs, Regulatory Affairs and Quality Assurance. The results of the management review are incorporated into action plans, which include goals, objectives and effectiveness checks. There are various mechanisms for documenting the action plans at Invitae, including the mechanism for Objectives and Key Results (OKRs) and individual Quality Improvement Plans (QIP).



Our Quality Mission:

We are committed to providing high quality services to our customers through all levels of the organization. This focus on our customers and their patients, and a dedication to delivering the right result in a timely manner, drives our commitment to monitoring performance and continuous improvement. The right patient, the right test, the right result at the right time.



Invitae's Quality System Design

Adherence to ISO quality principles prepares Invitae to embrace the future of the FDA and International requirements



Quality Control and Assurance

Quality Control (QC) and Quality Assurance (QA) programs ensure the effectiveness of our processes. We have several levels of internal controls throughout the stages of genetic testing, such as:

- Document Controls: policies, procedures and work instructions
- Process Controls: procedures and SPC (Statistical Process Controls)
- Material Controls: raw materials are controlled prior to production use
- Equipment Controls: installation, operational and performance qualifications, calibrations and monitoring
- Verification and Control of Materials: quality control, batch controls, lot controls
- Change Control: validation and verification of changes to process



Employee Training and Awareness on Quality

Our quality training begins when employees are hired and enables us to communicate effectively the requirements needed for each person in their role. For employees performing regulated tasks within the QMS, mandatory training is required prior to performing duties and competency assessments are required within the first six months of employment and annually thereafter. All our employees participate in ongoing training and continuing education specific to their roles.

Incident Reporting Framework

Invitae's Incident Reporting Program guides the management of nonconformities, which may have an impact on patient care. These procedures ensure the timely identification, remediation, corrective action and communication of activities, tasks, processes, changes or system improvements generated as a result of an investigation of a nonconformity.

All of our employees are required to identify, document and report any incident or complaint that impacts or potentially impacts (near miss) the quality of test results or has a negative impact on client satisfaction. This includes any non-conformance that involves a violation of privacy (HIPAA or international privacy) regulations. Our staff are trained on investigative techniques such as process Failure Modes and Effect Analysis (pFMEA) and Root Cause Analysis (RCA).

Our reporting system allows us to address immediate problems and also analyze data and trends over time, including frequency and where in the process it occurred, in order to identify any systemic issues as well as root causes. Each incident is categorized based upon severity and we follow guidelines and regulations regarding agency notification, including specific procedures outlining adverse event management and potential product recalls.

Performance Monitoring, Certifications and Audits

Invitae has a culture of continuous improvement and uses methods such as Lean and Six Sigma to monitor trends in performance, identify opportunities for improvement, implement corrective actions and monitor the effectiveness of those actions.

Continuous improvement is achieved through activities including, but not limited to:

- customer complaints / customer satisfaction surveys
- internal audits / external audits
- KPI performance analysis
- defect trends (IR/CAP/Deviations)
- Lean Six Sigma program
- quality management reviews

Quality Compliance

We comply with country-specific requirements and standards that are applicable to the geography of our facilities or the country we provide services to. In our US clinical laboratory facilities, we meet or exceed standards from CLIA and the College of American Pathologists (CAP), and have implemented the required elements set by the FDA, which go well beyond what is required. We have built trust in our capabilities by demonstrating the strength of our quality system with assessments against the standards over and above those required for our business, such as the FDA's QSR820 and the EU's MDR and IVDR standards. For a complete list of our licenses and certifications, please visit the [Licensing section](#) of our website.



Supply Chain Management



Supplier Quality Management

We recognize the importance of ensuring that our supply chain is robust and operates ethically, sustainably, and in line with legislation and our standards. The Supplier Quality team oversees our Supplier Quality Management program, with the aim of ensuring supplier quality via policies and procedures, contracts, performance monitoring and problem escalation.

Our supplier qualification program incorporates a risk assessment of and quality agreements with companies on our approved supplier list (ASL). The supplier questionnaire includes areas such as ISO certification or documented evidence of a Quality Management System, change notification and complaints management, and management review and audits. Over the past year, the Supplier Quality group performed a thorough, three-year review of supplier-caused quality incidents, managed internal audits with a goal of oversight and evaluation, and initiated corrective action as needed.

For our top suppliers, we set a higher bar and closer oversight of our “critical-to-quality,” defined as product or service suppliers that have a significant impact on products. For these critical suppliers, we have identified alternatives and contingencies where possible and have developed a process for supplier corrective action requests (SCAR).

Invitae’s Supplier Quality program is designed to meet applicable standards such as ISO 15189 and ISO 13485. Selected metrics measuring the overall health of the program are maintained and reviewed in management reviews.

Vendor Compliance Policies

We improved our vendor risk assessment program this year by adding technology solutions that continuously monitor a vendor’s risk profile and enable detailed risk assessments to identify risks associated with data access and data processing. We instituted a Vendor Risk Management program to assess potential vendors’ IT governance, security, and data privacy policies and practices prior to execution of contractual agreements.

In January 2022, we adopted a [Supplier Code of Conduct](#), which outlines our expectations for our suppliers and their subcontractors to comply with applicable laws and to operate their businesses in an ethical and sustainable manner. We concurrently instituted a [Human Rights Policy](#), which outlines the fundamental rights, freedoms and standards of treatment to which we believe all people are entitled. These rights include respect for labor rights, treating all people with dignity and respect, enabling a healthy and safe work environment, promoting ethical behavior and respecting privacy. We recognize that we are part of the communities in which we operate, and as part of our mission, we believe respect for human rights is integral to our business.

We plan to increase internal and supplier training and compliance requirements of these policies over the course of the next few years, prioritizing our critical supplier list and those with the highest perceived risk to begin with. As of December 2021, 60% of our top suppliers by spend have publicly available sustainability programs and reporting in place.



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Our ESG Report has been prepared in accordance with the accounting standards published by the Sustainability Accounting Standards Board (SASB). We have also identified the United Nations Sustainable Development Goals (SDGs) that we believe best align with our business activities and key priority areas.



United Nations Sustainable Development Goals (SDGs)

The United Nations Sustainable Development Goals (SDGs) are a collaborative, global effort to achieve a better and more sustainable future for all. Represented by 17 Global Goals and 169 targets, the SDGs address challenges of poverty, inequality, climate change, environmental degradation, peace and justice. We identified the key areas where we have the greatest influence and impact through our business strategy, products and services.

SDG	Description	Comments	Section in the report
	Ensure healthy lives and promote well-being for all at all ages	Health for All Humanity: We were founded with a singular mission—to bring genetics into mainstream medicine to improve healthcare for billions of people on the planet. Decoding the human genome is one of humankind's seminal scientific accomplishments. Using that knowledge to improve health for all of humanity is one of our greatest responsibilities.	Healthcare for Humanity
	Achieve gender equality and empower women and girls	Diversity, Equity and Inclusion: Our vision is to cultivate a place where we all belong. Our DEI mission is to engage, develop and retain talent from diverse backgrounds by fostering community, providing education and support, and advancing inclusive research and health equity globally.	Diversity, Equity and Inclusion
	Reduce inequality within and among countries	Access and Affordability: One of our founding principles is accessible, affordable genetic testing, so we work to drive down the price of quality testing to increase its clinical and personal utility. Through a combination of dramatically lowering the costs of testing, advocacy with our partners who sponsor testing in specific patient populations, and a generous patient assistance program, we have been able to expand access and pledge to continue such efforts.	Access and Affordability
	Ensure sustainable consumption and production patterns	Our Commitment to the Environment: We understand the impact of our operations and recognize that our environmental commitment is important to supporting our vision of improving healthcare affordability and accessibility. We take steps to reduce the footprint of our business operations through proper waste management and increased energy efficiency.	Environmental Sustainability



Sustainable Accounting Standards Board (SASB)

In developing this report, we have referenced the SASB Frameworks for the Health Care Delivery (HC-DY) industry. According to the SASB Industry Level Materiality Map, the following categories are most relevant to companies in our industry. In the table below, aligned with the SASB areas, are sections of our report where more information can be found about our efforts in each specific area.

As an additional level of diligence, we have referenced the SASB Frameworks for the Healthcare Biotechnology and Pharmaceuticals (HC-BP) industry which, due to our straddling of both healthcare and biotech, we felt would add an additional layer of transparency to our annual reporting. In the table below, aligned with the SASB areas, are sections of our report where more information can be found about our efforts in each specific area.



Topic	Accounting Metric	SASB Code	Report Reference
Energy Management	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable	HC-DY-130a.1	Environmental Sustainability
Waste Management	Total amount of medical waste, percentage (a) incinerated, (b) recycled or treated, and (c) landfilled	HC-DY-150a.1	Environmental Sustainability
	Total amount of: (1) hazardous and (2) non-hazardous pharmaceutical waste, percentage (a) incinerated, (b) recycled or treated, and (c) landfilled	HC-DY-150a.2	Environmental Sustainability
Patient Privacy & Electronic Health Records	Percentage of patient records that are Electronic Health Records (EHR) that meet “meaningful use” requirements	HC-DY-230a.1	Not applicable - we do not operate healthcare facilities
	Description of policies and practices to secure customers’ protected health information (PHI) records and other personally identifiable information (PII)	HC-DY-230a.2	Business Ethics and Compliance
	(1) Number of data breaches, (2) percentage involving (a) personally identifiable information (PII) only and (b) protected health information (PHI), (3) number of customers affected in each category, (a) PII only and (b) PHI	HC-DY-230a.3	Business Ethics and Compliance
	Total amount of monetary losses as a result of legal proceedings associated with data security and privacy	HC-DY-230a.4	Business Ethics and Compliance
Access for Low-Income Patients	Discussion of strategy to manage the mix of patient insurance status	HC-DY-240a.1	Access and Affordability
	Amount of Medicare Disproportionate Share Hospital (DSH) adjustment payments received	HC-DY-240a.2	Not applicable - we do not operate hospitals and DSH does not apply
Quality of Care & Patient Satisfaction	Average Hospital Value-Based Purchasing Total Performance Score and domain score, across all facilities	HC-DY-250a.1	Not applicable - We do not operate hospitals and these scores do not apply
	Number of Serious Reportable Events (SREs) as defined by the National Quality Forum (NQF)	HC-DY-250a.2	Not applicable - We do not operate hospitals and these scores do not apply. See Quality for our quality management practices
	Hospital-Acquired Condition (HAC) Score per hospital	HC-DY-250a.3	Not applicable - we do not operate healthcare facilities
	Excess readmission ratio per hospital	HC-DY-250a.4	Not applicable - We do not operate healthcare facilities
	Magnitude of readmissions payment adjustment as part of the Hospital Readmissions Reduction Program (HRRP)	HC-DY-250a.5	Not applicable - we do not operate healthcare facilities



Topic	Accounting Metric	SASB Code	Report Reference
Management of Controlled Substances	Description of policies and practices to manage the number of prescriptions issued for controlled substances	HC-DY-260a.1	Policy and Patient Advocacy
	Percentage of controlled substance prescriptions written for which a prescription drug monitoring program (PDMP) database was queried	HC-DY-260a.2	Policy and Patient Advocacy
Pricing & Billing Transparency	Description of policies or initiatives to ensure that patients are adequately informed about price before undergoing a procedure	HC-DY-270a.1	Access and Affordability
	Discussion of how pricing information for services is made publicly available	HC-DY-270a.2	Access and Affordability
	Number of the entity's 25 most common services for which pricing information is publicly available, percentage of total services performed (by volume) that these represent	HC-DY-270a.3	Access and Affordability
Employee Health & Safety	(1) Total recordable incident rate (TRIR) and (2) days away, restricted, or transferred (DART) rate	HC-DY-320a.1	EH&S
Employee Recruitment, Development & Retention	(1) Voluntary and (2) involuntary turnover rate for: (a) physicians, (b) non-physician healthcare practitioners, and (c) all other employees	HC-DY-330a.1	People & Culture
	Description of talent recruitment and retention efforts for healthcare practitioners	HC-DY-330a.2	People & Culture
Climate Change Impacts on Human Health & Infrastructure	Description of policies and practices to address: (1) the physical risks due to an increased frequency and intensity of extreme weather events and (2) changes in the morbidity and mortality rates of illnesses and diseases, associated with climate change	HC-DY-450a.1	1 Risk Management 2 Not applicable - we do not operate healthcare facilities"
Fraud & Unnecessary Procedures	Percentage of healthcare facilities that comply with the Centers for Medicare and Medicaid Services (CMS) Emergency Preparedness Rule	HC-DY-450a.2	Not applicable - we do not operate healthcare facilities
	Total amount of monetary losses as a result of legal proceedings associated with Medicare and Medicaid fraud under the False Claims Act	HC-DY-510a.1	Not disclosed



Topic	Accounting Metric	SASB Code	Report Reference
Safety of Clinical Trial Participants	Discussion, by world region, of management process for ensuring quality and patient safety during clinical trials	HC-BP-210a.1	Safety and Quality Management
	Number of FDA Sponsor Inspections related to clinical trial management and pharmacovigilance that resulted in: (1) Voluntary Action Indicated (VAI) and (2) Official Action Indicated (OAI)	HC-BP-210a.2	Safety and Quality Management
	Total amount of monetary losses as a result of legal proceedings associated with clinical trials in developing countries	HC-BP-210a.3	Not disclosed
Access to Medicines	Description of actions and initiatives to promote access to healthcare products for priority diseases and in priority countries as defined by the Access to Medicine Index	HC-BP-240a.1	Access and Affordability
	List of products on the WHO List of Prequalified Medicinal Products as part of its Prequalification of Medicines Programme (PQP)	HC-BP-240a.2	Not applicable - we do not develop medicines, but we do make our testing and services accessible
Affordability & Pricing	Number of settlements of Abbreviated New Drug Application (ANDA) litigation that involved payments and/or provisions to delay bringing an authorized generic product to market for a defined time period	HC-BP-240b.1	Not applicable - we do not develop medicines
	Percentage change in: (1) average list price and (2) average net price across U.S. product portfolio compared to previous year	HC-BP-240b.2	Not applicable - we do not develop medicines
	Percentage change in: (1) list price and (2) net price of product with largest increase compared to previous year	HC-BP-240b.3	Not applicable - we do not develop medicines
Drug Safety	List of products listed in the Food and Drug Administration's (FDA) MedWatch Safety Alerts for Human Medical Products database	HC-BP-250a.1	Not applicable - we do not fall under these programs
	Number of fatalities associated with products as reported in the FDA Adverse Event Reporting System	HC-BP-250a.2	Not applicable - we do not develop medicines
	Number of recalls issued, total units recalled	HC-BP-250a.3	Incident Reporting Framework
	Total amount of product accepted for take-back, reuse or disposal	HC-BP-250a.4	Not applicable - we do not develop medicines
	Number of FDA enforcement actions taken in response to violations of current Good Manufacturing Practices (cGMP), by type	HC-BP-250a.5	Not applicable at this time; we do not have FDA cleared products



Topic	Accounting Metric	SASB Code	Report Reference
Counterfeit Drugs	Description of methods and technologies used to maintain traceability of products throughout the supply chain and prevent counterfeiting	HC-BP-260a.1	Quality management, although we do not produce medicines and have no known risks related to counterfeit products
	Discussion of process for alerting customers and business partners of potential or known risks associated with counterfeit products	HC-BP-260a.2	Not applicable - we have no known risks related to counterfeit products
	Number of actions that led to raids, seizure, arrests, and/or filing of criminal charges related to counterfeit products	HC-BP-260a.3	Not applicable - we have had no actions related to counterfeit products
Ethical Marketing	Total amount of monetary losses as a result of legal proceedings associated with false marketing claims	HC-BP-270a.1	Not disclosed
	Description of code of ethics governing promotion of off-label use of products	HC-BP-270a.2	Not applicable - we have no off-label use of products
Employee Recruitment, Development & Retention	Discussion of talent recruitment and retention efforts for scientists and research and development personnel	HC-BP-330a.1	People & Culture
	(1) Voluntary and (2) involuntary turnover rate for: (a) executives/senior managers, (b) mid-level managers, (c) professionals, and (d) all others	HC-BP-330a.2	People & Culture
Supply Chain Management	Percentage of (1) entity's facilities and (2) Tier I suppliers' facilities participating in the Rx-360 International Pharmaceutical Supply Chain Consortium audit program or equivalent third-party audit programs for integrity of supply chain and ingredients	HC-BP-430a.1	Not applicable - we do not use pharmaceutical supply chains
Business Ethics	Total amount of monetary losses as a result of legal proceedings associated with corruption and bribery	HC-BP-510a.1	Not disclosed
	Description of code of ethics governing interactions with healthcare professionals	HC-BP-510a.2	Business Ethics and Compliance

Forward-Looking Statements

This report contains forward-looking statements that involve risks and uncertainties, including statements relating to the availability, features and potential impact of the company's products; the company's belief that its tests will enable more patients access to the right therapies at the right time; the company's beliefs regarding the shift towards precision oncology and the importance of genomic testing; the company's energy usage; the company's international expansion strategy; the company's beliefs regarding patient-centered data platform; and the company's ability to serve diverse patient populations. Forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially, and reported results should not be considered as an indication of future performance. These risks and uncertainties include, but are not limited to: the company's history of losses; the company's ability to compete; the company's failure to manage growth effectively; the company's need to scale its infrastructure in advance of demand for its tests and to increase demand for its tests; the company's ability to use rapidly changing genetic data to interpret test results accurately and consistently; security breaches, loss of data and other disruptions; laws and regulations applicable to the company's business; and the other risks set forth in the company's filings with the Securities and Exchange Commission, including the risks set forth in the company's most recent filings on Forms 10-K and 10-Q, or in information disclosed in public conference calls, the date and time of which are released beforehand. These forward-looking statements speak only as of the date hereof, and Invitae Corporation disclaims any obligation to update these forward-looking statements.