

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 10-K

(Mark One)

- ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended December 31, 2020
OR
 TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to
Commission File Number: 001-37792

NantHealth, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)
9920 Jefferson Blvd.
Culver City, California
(Address of principal executive offices)

27-3019889
(I.R.S. Employer
Identification No.)
90232
(Zip Code)

(310) 883-1300

Registrant's telephone number, including area code

Securities registered pursuant to Section 12(b) of the Act:

<u>Title of each class</u>	<u>Trading Symbol(s)</u>	<u>Name of each exchange on which registered</u>
Common Stock, par value \$0.0001 per share	NH	The NASDAQ Global Select Market

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes No

Indicate by check mark whether the Registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the Registrant has submitted electronically every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the Registrant was required to submit and post such files). Yes No

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer", "accelerated filer", "smaller reporting company", and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input checked="" type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). YES NO

The aggregate market value of the voting and non-voting common stock held by non-affiliates of the Registrant on June 30, 2020, based on a closing price \$4.58 per share of common stock on the NASDAQ Global Select Market on June 30, 2020, was approximately \$183.5 million.

The number of shares of Registrant's common stock, \$0.0001 par value per share, outstanding as of February 26, 2021 was 111,318,633.

DOCUMENTS INCORPORATED BY REFERENCE

As noted herein, the information called for by Part III is incorporated by reference to specified portions of the Registrant's definitive proxy statement to be filed in conjunction with the Registrant's 2021 Annual Meeting of Stockholders, which is expected to be filed not later than 120 days after the Registrant's

SPECIAL NOTE REGARDING FORWARD LOOKING STATEMENTS

This Annual Report on Form 10-K, or this Annual Report, including, without limitation, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Item 1A, "Risk Factors," contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. In some cases you can identify these statements by forward-looking words such as "believe," "may," "will," "might," "estimate," "continue," "anticipate," "intend," "could," "should," "would," "project," "plan," "outlook," "target," "expect," or similar expressions, or the negative or plural of these words or expressions. These forward-looking statements include, but are not limited to, statements concerning the following:

- the structural change in the market for healthcare in the United States, including uncertainty in the healthcare regulatory framework and regulatory developments in the United States and foreign countries;
- any impact of the COVID-19 pandemic, or responses to the pandemic, on our operations or personnel, or on commercial activity or demand across our and our customers' businesses;
- the evolving treatment paradigm for cancer, including physicians' use of molecular information and targeted oncology therapeutics and the market size for molecular information products;
- physicians' need for precision medicine products and any perceived advantage of our solutions over those of our competitors, including the ability of our comprehensive platform to help physicians treat their patients' cancers;
- our ability to generate revenue from sales of products enabled by our molecular analysis platforms to physicians in clinical settings;
- our ability to increase the commercial success and to accelerate commercial growth of our sequencing and molecular analysis solutions and our other products and services;
- our plans or ability to obtain reimbursement for our sequencing and molecular analysis solutions, including expectations as to our ability or the amount of time it will take to achieve successful reimbursement from third-party payers, such as commercial insurance companies and health maintenance organizations, and government insurance programs, such as Medicare and Medicaid;
- our ability to effectively manage our growth, including the rate and degree of market acceptance of our solutions;
- our ability to offer new and innovative products and services, including new features and functionality for our existing products and services;
- our ability to attract new partners and clients and our ability to retain or renew contracts with partners and clients;
- our ability to estimate the size of our target market;
- our ability to maintain and enhance our reputation and brand recognition;
- consolidation in the healthcare industry;
- competition which could limit our ability to maintain or expand market share within our industry;
- restrictions and penalties as a result of privacy and data protection laws;
- our use of "open source" software;
- our ability to use, disclose, de-identify or license data and to integrate third-party technologies;
- data loss or corruption due to failures or errors in our systems and service disruptions at our data centers;
- breaches or failures of our security measures;
- our reliance on Internet infrastructure, bandwidth providers, data center providers, other third parties and our own systems for providing services to our users;
- risks related to future acquisition opportunities;
- the requirements of being a public company;
- our ability to attract and retain key personnel;
- our expectations regarding the period during which we qualify as an emerging growth company under the Jumpstart Our Business Startups Act, or the JOBS Act;
- our ability to obtain and maintain intellectual property protection for our solutions and not infringe upon the intellectual property of others;
- our financial performance expectations, including our expectations regarding our revenue, cost of revenue, gross profit or gross margin, operating expenses, including changes in research and development, sales and marketing and general and administrative expenses, and our ability to achieve and maintain future profitability; and
- our expectations regarding our ability to comply with Nasdaq continued listing standards.

We caution you that the foregoing list does not contain all of the forward-looking statements made in this Annual Report.

These forward-looking statements are based on current expectations and assumptions that are subject to risks and uncertainties, which could cause our actual results to differ materially from those reflected in the forward-looking statements. These statements are within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. These statements appear throughout this Annual Report and are statements regarding our intent, belief, or current expectations, primarily based on our current assumptions, expectations and projections about future events and trends that may affect our business, financial conditions, operating results, cash flows or prospects, as well as related industry developments. You should not place undue reliance on these forward-looking statements, which apply only as of the date of this Annual Report. Our actual results could differ materially from those anticipated in these forward-looking statements for many reasons, including the risks faced by us and described in Part I, Item 1A, "Risk Factors," and in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of this Annual Report. We undertake no obligation to update any forward-looking statements for any reason to conform these statements to actual results or to changes in our expectations, except as required by law.

Form 10-K
For the year ended December 31, 2020
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We own or have rights to trademarks and service marks that we use in connection with the operation of our business. NantHealth, Inc. and our logo as well as other brands such as GPS Cancer, Omics Core, NaviNet, Eviti, NaviNet Open, Eviti | Connect, OpenNMS, Quadris and other marks relating to our product lines are used in this Annual Report on Form 10-K. Solely for convenience, the trademarks and service marks referred to in this Annual Report on Form 10-K are listed without the (sm) and (TM) symbols, but we will assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensors to these trademarks, service marks and trade names. Additionally, we do not intend for our use or display of other companies' trade names, trademarks, or service marks to imply a relationship with, or endorsement or sponsorship of us by, these other companies.

PART I

Item 1. Business

Overview

NantHealth, Inc. ("NantHealth" or the "Company") provides enterprise solutions that help businesses transform complex data into actionable insights. By offering efficient ways to move, interpret, and visualize complex and highly sensitive information, we help our customers in healthcare, life sciences, logistics, telecommunications, and other industries, to automate, understand, and act on data while keeping it secure and scalable.

NantHealth's product portfolio comprises the latest technology in payer/provider collaboration platforms for real-time coverage decision support (Evi and NaviNet), molecular analysis services (GPS Cancer and Omics Core), and data solutions that include multi-data analysis, reporting and professional services offerings (Quadris). In addition, The OpenNMS Group, Inc. ("OpenNMS"), a NantHealth subsidiary, helps businesses monitor and manage network health and performance. Altogether, we generally derive revenue from SaaS subscription fees, support services, professional services, molecular analysis services, and revenue sharing through collaborations with complementary businesses.

We believe we are uniquely positioned to benefit from multiple significant market opportunities as healthcare providers and payers look for solutions to manage their data, transition from fee-for-service to value-based reimbursement models, and accelerate their pursuit of evidence-based clinical practice. We also believe that our core business lines enable opportunities to create data analytics services and assets which further drive value and efficiency for our customers. We are investing to further integrate big data and automated intelligence technologies within our core business lines and to create new product and service offerings.

On January 13, 2020, NantHealth entered into an asset purchase agreement with Masimo Corporation, VCCB Holdings, Inc., and NantWorks, LLC to sell its assets related to its "Connected Care" business, including the products known as DCX (formerly DeviceConX), VCX (formerly VitalsConX), HBox and Shuttle Cable (the Company's medical-grade serial-to-USB interface cable product offering). The Company completed the sale on February 3, 2020. See "Management's Discussion and Analysis of Financial Condition and Results of Operations" for additional information.

On July 22, 2020, NantHealth entered into an assignment agreement with Cambridge Equities, L.P. ("Cambridge") to acquire approximately 91% of OpenNMS. The acquisition of OpenNMS, an enterprise-grade open-source network monitoring company, expands and diversifies NantHealth's software portfolio and service offerings, adding AI technologies, and enhancing cloud and SaaS capabilities. We believe OpenNMS will provide NantHealth customers with a new set of services to maintain reliable network connections for critical data flows that enable patient data collaboration and decision making at the point of care. See "Management's Discussion and Analysis of Financial Condition and Results of Operations" for additional information.

We Are Uniquely Positioned to Address Transformative Shifts across the Healthcare Continuum

The shift to digital transformation. The proliferation of data is well-known across all industries, and this is particularly true in healthcare. Every medical device, network and platform is creating and consuming data at a staggering rate. We believe this presents both a challenge and an opportunity. The abundance of data makes it overwhelming to manage, and an even greater challenge is to extract business value embedded in data. Turning data into something businesses can use to their advantage can be a complex, manual task, and the time, effort and energy required can zero out the benefits. If businesses are unable to extract meaning, then data continues to accumulate, becoming a hinderance to business efficiency and effectiveness. It is precisely because it is challenging to make data actionable, that it becomes an opportunity for businesses to build competitive advantage.

We believe we possess six key capabilities needed to help our customers unlock the value that resides in their data. NantHealth has the ability to: 1) move data efficiently, 2) interpret it accurately, 3) visualize it intuitively while keeping the data 4) safe, 5) secure and 6) scalable. That is what we do at NantHealth. We provide enterprise solutions that help businesses transform complex data into actionable insights. These capabilities are delivered through a comprehensive suite of products and services unique to NantHealth. In addition to the acquisition of OpenNMS, which added network monitoring to our solutions catalog, we are expanding our data science capabilities and AI competencies to drive further innovation across our existing product lines and to explore new product and service offerings in the data analytics field.

The shift to value-based care and precision medicine. The efficiency and effectiveness of the current healthcare system is often hindered by the complex, dynamic interplay of three uncoordinated and segregated domains: the knowledge domain, the care delivery domain, and the payer domain. The disparate nature of these domains, and their often-inconsistent incentives and conflicting priorities, can inhibit interoperability and coordination. We believe two simultaneous, transformative shifts are highlighting these critical deficiencies of the current healthcare environment:

1. **A rapid evolution from traditional fee-for-service to patient-centered and patient-empowered, value-based models driven by quantifiable measures of outcomes relative to cost.** Unsustainable escalating healthcare costs, which we believe are due to broken fee-for-service models, are driving many stakeholders and governments toward alternative delivery models. Despite significant investments in Electronic Health Records ("EHRs") and other technologies designed to enable the transition to more value-based care, we believe that, in a fee-for-service model, the economic incentives generally discourage coordination among healthcare stakeholders and encourage volume-driven (rather than outcomes-driven) decision-making. This model results in healthcare and financial data that remains largely segregated into "walled gardens." Thus, patient data often remains static and cannot be easily shared or interpreted due to siloed legacy proprietary platforms that lack interoperability.
2. **A shift to molecularly precise medicine, with both massive volumes and rapidly expanding repositories of complex data from traditional and novel sources.** Advances in molecular medicine require healthcare providers to promptly aggregate, evaluate and synthesize hundreds to thousands of relevant facts in real time to arrive at a single patient decision. Molecular profiling often generates hundreds of gigabytes of data per patient, which must then be transported, stored, analyzed and interpreted with supercomputing and/or high-performance computing environments. We believe the rapid pace of medical advancements and the massive amount of molecular data being generated is overwhelming many providers' ability to process that information at the point of care, thereby inhibiting the growth of individualized medicine.

We believe these shifts, and the associated challenges, require advanced technology systems and data expertise that our customers cannot quickly and easily develop on their own. Our unique portfolio of technology solutions allow us to collect, interpret and deliver data insights that help our customers improve their businesses, provide decision support with a comprehensive knowledge base of evidence-based treatment options, and help both payers and providers effectively transition to value-based care. Given the magnitude of these shifts and the difficulty involved in addressing the associated challenges, we believe our solution platforms serve to position NantHealth at the forefront of multiple growing market opportunities. We have invested significant capital, software development, data, healthcare and biotechnology expertise over a decade to develop, acquire and integrate the components that we believe address many of the challenges faced by stakeholders across the continuum of care.

Our Strategy

Our goal is to become the leading provider of solutions that enable enterprises to leverage actionable data insights. In the healthcare space, we seek to facilitate payer and provider collaboration, and to leverage clinical data and knowledge towards delivering improved patient outcomes and more effective treatment decisions for critical illnesses. To accomplish this goal, we plan to deploy NantHealth solutions designed to address and accelerate the transformational shifts occurring in healthcare (empowering the extraction of value from the growing abundance of data; rapid evolution from traditional fee-for-service to value-based models; and, the shift to molecularly precise medicine), while also expanding our network monitoring solution capabilities to support the underlying infrastructure necessary to enable transformational shifts in healthcare and other industries. The key elements of our strategy include:

- **Leveraging NantHealth's key capabilities delivered through a comprehensive suite of solutions to unlock value from data.** NantHealth's solution capabilities include:
 - SaaS-based platforms: our enterprise-grade platforms are designed for automation, security, ease-of-use and scalability;
 - Evidence-based support: our robust database and analysis of FDA-approved treatment options improves decision support while reducing waste;
 - Real-world enabled insights: our solutions can provide real-world evidence that demonstrates effectiveness, safety and value;
 - Network performance: our OpenNMS services provide a highly scalable, reliable, and extensible platform for network monitoring; and
 - Interoperability: we connect and normalize data for real-time collaboration and information exchange.

- **Increasing sales of NantHealth solutions to healthcare payers, providers, and self-insured employers.** We are marketing NantHealth solutions to healthcare payers and providers transitioning from fee-for-service reimbursement models to value-based care models in pursuit of improved patient outcomes and lower costs. We believe we are positioning NantHealth as a next-generation payer intermediary and partner with healthcare payers and self-insured employers as they roll out value-based model partnerships and transition to value-based precision care.
- **Growing the market for open source-based network monitoring services.** We are working to grow the on-premise install base for the OpenNMS network monitoring platform and expand sales of OpenNMS maintenance, support and professional service offerings. We are also expanding the OpenNMS service suite to include SaaS based monitoring services and easier to manage “no-touch” remote appliance services.
- **Developing new features and functionality for NantHealth solutions.** We are continuing to make significant R&D investments to create new features and functionality within NantHealth’s solutions. For example, we are exploring the expansion of our Eviti decision support product line to cover additional diseases and chronic conditions and are furthering the integration of artificial intelligence/machine learning (AI/ML)-based analytics into our network monitoring solutions to provide insights into alarm/event correlation, anomaly detection, and root cause analysis (RCA). We are also continuing the development of data analytics capabilities and assets so that we can expand the products and services offered to our healthcare clients and partners.
- **Complementing internal growth with strategic acquisitions.** We believe opportunities exist for us to enhance our competitive position by acquiring additional companies with complementary products and technologies and/or acquiring rights to proprietary products or technologies from third parties.
- **Exploring industry partnerships for companion diagnostics, while continuing to pursue enhanced reimbursement for our molecular analysis services.** We have pursued FDA 510(k) authorization and Medicare coverage for the core elements of our GPS Cancer laboratory developed test offering. In the fourth quarter of 2019, we received FDA 510(k) authorization for “Omics Core”, the nation’s first FDA authorized whole exome tumor-normal in vitro diagnostic (IVD) that measures overall tumor mutational burden (TMB) in cancer tissue, completing a key step towards achieving Medicare coverage. In May 2020, we received notice from Molecular Diagnostic Services (Moldx) of a limited coverage determination for Omics Core. Going forward, we intend to explore opportunities to commercialize our test capabilities with pharmaceutical partners through companion diagnostics and to improve overall reimbursement coverage.

Our Industry

Today, the explosion in the quantity, frequency and complexity of data and the ability to measure data in terms of outcomes relative to cost, demands to mature, specialized software platforms, and expertise to address transformative shifts and challenges.

Every device, network and platform is creating and consuming data at a staggering rate, making it overwhelming to manage, and extract business value embedded in the data.

Nearly 100% of C-level executives surveyed by PricewaterhouseCoopers said they see data on customers and clients as “critical or important” to getting an edge on competitors in the years ahead. Businesses must learn how to uncover actionable insights hidden in their data, or risk being left behind. But turning bits and bytes of data into something businesses can use to their advantage can be a complex, manual task that involves the ability to:

- Connect systems
- Normalize data
- Interpret outputs
- Make it actionable

Developing the capabilities needed for businesses to undertake the challenge of managing, analyzing, and interpreting data is difficult. Those able to tap the insights hidden within their data and make it actionable for their employees and stakeholders will unearth a new source of value and differentiation.

In the U.S. healthcare industry, a rapid evolution from traditional fee-for-service to patient-centered and patient-empowered, value-based models driven by quantifiable measures of outcomes relative to cost.

In response to the rising cost of healthcare, government and private payers and providers are introducing value-based care models. In value-based models, providers assume increased levels of clinical and financial responsibility for patient outcomes, instead of being reimbursed strictly based on the quantity of services provided. We believe that healthcare platforms that efficiently assist healthcare stakeholders to transition to these value-based models will be best positioned to capture this opportunity.

Challenges associated with the adoption of value-based models

The healthcare continuum can be viewed as an aggregation of three distinct domains:

- The knowledge domain, including academic centers, scientific institutions and companies that discover and commercialize medical and scientific knowledge;
- The care delivery domain, including hospitals, community practices, physicians and other constituents that deliver healthcare to patients; and
- The payer domain, including insurers, governments and self-insured employers that administer and provide funding to the healthcare system.

The disparate and fragmented nature of these domains and economic incentives under traditional fee-for-service models frequently result in overtreatment, high costs and suboptimal patient outcomes. Fee-for-service models are as a general matter inherently site-centric, volume driven, reactive in nature and uncoordinated. In contrast, value-based models are generally more patient-centric, outcomes-focused, proactive and coordinated across the care continuum.

Despite a clear need, the design and implementation of next-generation interoperable systems has been limited due to reliance on legacy, site-specific, fee-for-service technology systems and infrastructure. Since the passage of the HITECH Act in 2009, providers and payers have made significant investments in EHRs, and other technologies meant to enable the transition to value-based care. Despite extensive investment and coordination, the introduction of value-based models has been limited due to the shortcomings of legacy, proprietary systems and the reliance on unstructured data that hinders interoperability and cannot be sufficiently shared or manipulated to produce actionable findings. Value-based models require collection and analysis of longitudinal treatment, outcomes and financial data at the patient level, regardless of treatment site. Critically, these systems must also securely safeguard patient data in compliance with stringent HIPAA and other privacy regulations. We believe that there is a significant need for interoperability platforms that dynamically access, normalize, integrate and update information from disparate sources across the healthcare continuum in real time. Secure interoperability platforms can allow for more comprehensive solutions development that proactively connect, deliver business and clinical intelligence and enable enhanced provider and patient engagement.

A shift to molecularly precise medicine, with both massive volumes and rapidly expanding categories of complex data from traditional and novel sources.

The collection and interpretation of molecular profiles has the potential to dramatically improve quality and outcomes.

Evolution to comprehensive molecular analysis

Advances in genomic sequencing and the associated cost efficiencies have led to the development of targeted therapeutics initiating the transformation from “one size fits all” treatments to personalized, molecularly precise medicine. Oncology is leading the rapid advances in molecular testing and the development of targeted therapeutics based on increasing understanding of the impact of molecular profile on disease progression. Recent publications, including The Cancer Genome Atlas Research Network genomic and molecular characterization studies, support selection of treatment regimens based on the underlying molecular pathways and related genomic alterations in the genetic profile of the tumor compared with the patient’s own germline, as opposed to the anatomical location of the cancer in the patient’s body. Cancer is increasingly understood to be a heterogeneous collection of rare diseases, with hundreds of patient-specific, cancer-promoting mutated proteins, some known and many more unknown, called neoepitopes. Identifying and targeting these mutated proteins is requiring more comprehensive genomic analysis (including tumor-to-germline comparison and RNA expression as confirmation of the presence of variants), which is increasingly becoming embedded in drug approvals. As a result, we believe comprehensive genomic analysis is positioned to become the standard of clinical care, replacing single marker or gene panels in treating cancer patients.

While oncology represents an immediate opportunity for the application of comprehensive genomic analysis, other disease areas are beginning to experience a similar evolution. We believe technologies that enable the capture, aggregation and analysis of massive volumes of genomic data will further bolster the growth of precision medicine and its expansion from cancer to additional disease states. Over time, we believe this will lead to identification of drugs that target specific pathways by using a universal personalized companion diagnostics platform, ultimately resulting in improved clinical outcomes.

Growth in complexity and its promise for value-based models

Advances in data collection and molecular medicine require healthcare providers to promptly aggregate, evaluate and synthesize hundreds to thousands of relevant facts to arrive at a single patient decision. With the pace of medical advancements, the significant amount of data being created every day by patient care, payment and regulatory compliance systems, and the enormous complexity of genomics and expression analysis derived from comprehensive molecular analysis, it is nearly impossible for a practicing physician to interpret and synthesize the deluge of complex information required for patient treatment.

We believe there is a considerable need for collaboration and decision support platforms, along with advanced adaptive machine learning algorithms, to collect, index and analyze rich phenotypic and genomic data at scale to support physician decision-making. Although this complexity creates significant challenges, it also presents opportunities for developers of systems infrastructures, platforms and learning systems that can identify clinically meaningful correlations that can be employed to improve patient outcomes in a cost-effective manner.

Managing massive volumes of data requires specialized infrastructure, and making data meaningful and actionable requires it to be processed by advanced systems operating in scalable and reliable environments.

The network monitoring market is moving away from corporate managed, on premise solutions towards hybrid and cloud solutions with a focus on platform services expansion and artificial intelligence/machine learning (AI/ML)-based analytics to provide intelligent alarm/event management.

Key trends include:

- Expansion of the network edge to include IoT components and the migration of the network core to the cloud requires that network performance monitoring and diagnostics tools provide visibility in hybrid environments, including edge and cloud network monitoring.
- Implementation of cloud native applications and microservices for platform management and orchestration to optimize performance and cost in the cloud.
- Increasing appetite for flexible deployment models include SaaS and on-demand pricing, and use of virtual machines, software appliances, and hardware appliances to enable these deployments.
- Evolution of traditional network monitoring platforms beyond the basic levels of infrastructure monitoring, and incorporating APIs for easy extension of additional services such as Digital Experience Monitoring, flows/flowlogs, and other applications that support business users and understanding of end-user experience.
- Increasing focus on AI/ML advanced analytics to support AIOPs (e.g., for anomaly detection, event correlation and root cause analysis (RCA)).
- Focus on network security and alignment between network operations and security operations.

With our highly scalable, reliable, and extensible platform solution for network monitoring, OpenNMS is well positioned to address these market trends. Our zero touch appliance solution enables remote monitoring of edge components and enables additional hybrid and cloud integrations. Our traffic analysis (flows) and route monitoring solutions provide deep understanding of network performance. Our Architecture for Learning Enabled Correlation (ALEC) AI/ML solution provides valuable insights and visualizations for interpreting complex faults/alerts.

Our Market Opportunity

We believe the increasing focus on managing, analyzing and interpreting the large amounts of generated data, and on value-based reimbursement models and evidence-based, personalized medicine will drive validation and adoption of NantHealth solutions.

- **Proliferation of Data:** Over 44T gigabytes of data have been amassed by companies as of 2020, with a 581% increase in new data by 2025. Given the challenges and specialized capabilities required to manage, analyze, and derive insights from the vast amounts of data, we believe NantHealth is uniquely positioned to address this market need.
- **Cost of Cancer Care:** Recent statistics show that 39.5% of Americans will be diagnosed with cancer at some point in their lives, resulting in an estimated cost of \$246 billion by 2030. As the cost of cancer care continues to grow, there will be an ongoing need to balance cost efficiency with improved outcomes. Our evidence-based decision support solutions can help providers and payers better manage oncology care for the patients and members they serve.

- Transition to Digital: Reports show that 75% of all medical communications still happen over fax in addition to phone calls, emails and other manual channels. NantHealth's payer/provider collaboration platforms can significantly improve the efficient, accurate and timely exchange of information.
- Precision Medicine: Comprehensive diagnostics and evidence-based medicine is becoming increasingly important across multiple disease areas and likely assuming greater share of the combined biopharmaceutical and diagnostics markets. Our molecular analysis solutions enable an increased understanding of molecular pathways and the ability to treat diseases at the individual level.

We believe the potential addressable market for NantHealth solutions will continue to grow in relation to the market-share gains of value-based models, the continuing transition to digital only clinical communications and collaboration and the adoption of precision medicine.

NantHealth Solutions

Our NantHealth solutions comprise a highly differentiated, integrated model for the application of data insights and the delivery of healthcare, comprised of our unique data management, analysis and interpretation solutions, network monitoring, software-as-a-service platforms, and molecular profiling solutions, enabling value-based care and evidence-based clinical practice. Our platform and our multi-domain solutions are designed to address some of the most pressing cross-domain challenges across the healthcare continuum. Our solutions are single-domain and cross-domain offerings that can be applied, for example, within a hospital system or for a hospital system and a commercial insurance provider in an Accountable Care Organization, or ACO, crossing multiple domains. We believe our unique systems-based approach positions us as a next-generation intermediary and partner that facilitates payment for value, improved patient outcomes and more efficient communication and collaboration among systems and industry participants.

- **Payer Solutions.** Our NantHealth payer SaaS solutions, including NaviNet Open and Eviti Connect, establish daily access to the clinical practice and caregiver and leverage the data available on our systems infrastructure to facilitate reduction in overall administrative costs and payment for value. We believe our position between the payer and the provider allows us to align incentives as a next-generation payer intermediary, to help payers ensure consistent evidence-based treatment pathways and to accelerate pre-adjudication and lower administrative overhead for providers. This can ultimately drive quality of care and streamline workflows while improving control over the administrative and operating costs associated with eligibility and benefits, claims processing, referrals, authorizations, information exchange and review utilization. Our multi-payer collaboration solution, NaviNet Open, offers provider end users a uniform set of workflows and services across many or all the payers with whom they routinely collaborate. This multi-payer experience benefits payers and providers alike. Providers can benefit from a uniform experience and toolset across multiple payer relationships, and the payer can benefit from the uniform application of best practices, tools, and options, as well as the reduction in costly errors and phone-based interactions that can stem from a non-uniform end-user experience.
- **Provider Solutions.** Our provider SaaS solutions, comprised of NaviNet, AllPayer and Eviti Advisor, leverage the data available on our systems infrastructure to enable patient-centered engagement and coordination across care locations. These solutions include clinical and administrative workflows, including eligibility and benefits, claims, referrals and authorizations management solutions.
- **Network Management Solutions.** Our OpenNMS service offerings provide a reliable, scalable, comprehensive fault, performance, and traffic monitoring solution that easily integrates with core business applications and workflows to monitor and visualize everything in the network. The OpenNMS platform monitors some of the largest networks in the Fortune 500, covering the healthcare, technology, energy, finance, government, education, retail and industrial sectors, many with tens of thousands of networked devices.
- **Data Solutions (Quadris).** Our data product and service offerings enable clients to leverage real-world data, AI and machine learning to optimize commercial spend, demonstrate ongoing safety and value, improve clinical development, speed drug delivery.
- **Molecular Analysis Solutions.** Our advanced molecular analysis solutions can enable our clients to improve decision-making and inform personalized treatment strategies. Our GPS Cancer offering is the only comprehensive and commercially available molecular profiling solution that integrates whole genome/exome (comparing both a patient's normal and tumor tissue), RNA and molecular pathways information into a clinical report that analyzes this data and identifies actionable targets and potential clinical treatment options. Omics Core is the first FDA cleared whole exome sequencing platform for overall tumor mutation burden.

We designed our NantHealth solutions to enable providers, payers, pharma and self-insured employers to overcome challenges encountered across the knowledge, care delivery, and payer domains within the healthcare continuum.

Product Overviews

Eviti Connect and Eviti Advisor

The rapid advancement of molecular and biometric medicine is overwhelming many physicians' cognitive ability, while uncoordinated, non-evidence-based treatment plans are increasing costs and reducing the quality of care.

Eviti, our decision support platform, provides evidence-based clinical decision support, which is a critical element to ensure optimal treatment regimens. Eviti is a SaaS-based clinical decision support solution that centralizes clinical content, treatment cost data from Medicare reimbursements and treatment toxicity data. The clinical content is curated by our dedicated team of clinicians, including oncologists and nurses, who convert published literature and clinical trials into structured information that can be used for decision support. The Eviti Connect product is sold to health plans and utilizes the platform to offer pre-authorization automation that helps payers and providers navigate the complexities of cancer care, making it easier to identify and validate oncology treatment regimens suited to each patient. The Eviti Advisor product is offered to providers and allows physicians to access the Eviti platform's comprehensive library of evidence-based treatment standards and protocols to better inform treatment decisions and readily stay abreast of the latest advances in cancer care.

Eviti provides value to our clients through its access to over 8,400 federally-registered clinical trials updated weekly and over 4,500 evidence-based treatment regimens for the treatment of cancer arising from over 40 different anatomical locations. Over the past ten years, Eviti has saved health plan customers several hundred million dollars by directing providers to evidence-based protocols at the point of prescribing. Unique to the care delivery domain, physicians also benefit from improved claim processing by using the Eviti Connect product, which issues a pre-authorization "Eviti code" when the physician chooses an approved evidence-based clinical pathway, thereby validating appropriate treatment and pre-adjudicating the claim. This is an important step in that payers and providers are collaborating on high-value, evidence-based clinical pathways as opposed to non-value-added reimbursements and denials of payments.

Eviti Connect is typically sold to health plans on a per member (or life) per month basis. These health plans sponsor the solution and provide Eviti free of charge to oncologists and their staffs.

The snapshot of our system below illustrates how different cancer treatment options for a patient is presented to compare treatments across a variety of metrics, including expected treatment outcome, plan compliance and costs. By providing the oncologist with this comparison, we believe Eviti drives compliance and a greater number of treatments to be in accordance with evidence-based medicine.

eviti | Connect Home Practice Dashboard Rx Saved Treatments My Account Logout

NantHealth | Eviti Welcome Medical

Choose A Cancer Type: Breast Refine Results

Regimen Preference Legend: Preferred Regimen Highly Preferred

Active Filters: Pathology: Adenocarcinoma Stage: IIA

The pricing displayed is for reference at ASP +6%. It may not represent your final reimbursement which is subject to fee schedules, eligibility, and any plan provisions or qualifiers.

Evidence-Based Regimens Total Regimens Found: 74

Regimen Name	Line of Treatment(s)	Stage(s)	Level of Evidence	Reported Outcome (Most Relevant)	Total Cost of Treatment
<input type="checkbox"/> Dose Dense Doxorubicin and Cyclophosphamide Followed by Paclitaxel Every 2 Weeks (AC-P) (Stages IIA-IIIIC, Neoadjuvant)	Neoadjuvant/ Pre-operative	IIA, IIB, IIIA, IIIB, IIIC	A4	3 year OS: 92.0 %	\$4,574.72
<input type="checkbox"/> Dose Dense Doxorubicin and Cyclophosphamide Followed by Paclitaxel Every 2 Weeks (AC-P) (Stages IA-IIIIC, Adjuvant)	Adjuvant/ Post-operative	IA, IB, IIA, IIB, IIIA, IIIB, IIIC	A4	3 year OS: 92.0 %	\$4,574.72
<input type="checkbox"/> Anastrozole (Arimidex) (Five years) (Stages IA-IIIIC, Adjuvant)	Adjuvant/ Post-operative	IA, IB, IIA, IIB, IIIA, IIIB, IIIC	A4	N/A	\$21,645.00
<input type="checkbox"/> Exemestane (Aromasin) After Initial Tamoxifen (Stages IA-IIIIC, Adjuvant)	Adjuvant/ Post-operative	IA, IB, IIA, IIB, IIIA, IIIB, IIIC	A4	5 year OS: 98.0 %	\$24,392.16
<input type="checkbox"/> Letrozole (Femara) (Stages IA-IIIIC, Adjuvant)	Adjuvant/ Post-operative	IA, IB, IIA, IIB, IIIA, IIIB, IIIC	A4	N/A	\$38,238.00
<input type="checkbox"/> Neratinib (Nerlynx) after Adjuvant Trastuzumab (Stages IIA-IIIIC, Adjuvant)	Adjuvant/ Post-operative	IIA, IIB, IIIA, IIIB, IIIC	A4	N/A	\$164,808.00

View / Compare Regimens Save and Continue

Clinical Trials Total Trials Found: 5

NaviNet

NaviNet is a suite of SaaS-based solutions enabling payers and providers to streamline communication and consolidate information, while gaining access to a richer set of data to improve patient care. The NaviNet solutions include clinical and administrative workflow, eligibility and benefits, claims, and referral management solutions.

NaviNet Open

NaviNet Open is a leading payer-provider collaboration platform, enhancing communication between health plans and providers to increase operating efficiency, lower costs, improve provider satisfaction and enable expansion. As organizations develop more value-based product lines to support the transition to value-based care, provider alignment and actionable data prior to care delivery becomes critical. To enable these capabilities, health plans and providers need a flexible, extensible infrastructure that fosters collaboration and encourages interoperability. NaviNet Open delivers vital administrative and clinical information to providers in real-time, so they can quickly and easily communicate across multiple health plans. As of December 31, 2020, NaviNet Open has 826,000 registered users who performed more than 31 million online interactions per month with over 1,000 health plans.

NaviNet Open solutions include:

- **Plan Central:** Provides our health plan partners with the ability to deliver a branded custom-content experience to their provider networks, allowing plans to own and manage their communications to users in support of their business. Plan Central is valued by our partners as a single access point for all provider and end-user communications, transactions, and content, delivering ease of use and increased provider satisfaction.
- **Eligibility and Benefits:** Delivers membership verification, insurance coverage, and payment information, such as copayments, deductibles, and benefit intelligence to provider offices in real-time; information that is highly valued by providers and members alike. Provider offices can verify insurance and benefit coverage at the time of a patient visit or as part of the billing cycle.

- **Claims Status Inquiry:** Lets provider offices access detailed financial and claim status information in real-time; automating the delivery of claim receipt confirmation, adjudication status, and payment details. This eliminates the need for provider offices to call health plans directly to maintain a healthy revenue cycle and improves provider satisfaction.
- **Claims Management:** A collection of powerful claim applications that consist of Claim Submission, pre- and post-adjudication Corrections and Adjustments, Claim Attachments, Claim Investigation, Claim Appeals and a multi-payer Claims Log where users manage their claim submissions. Our integrated Claims Management solution simplifies payment efforts by eliminating phone calls, costly paper claims, and other manual processes associated with claims follow-up, correction, and resubmission. Providers now gain access to a powerful set of claim tools, augmenting provider systems with self-service access, or without needing a sophisticated EMR or practice management system at all.
- **Referrals:** Lets provider offices submit and access referrals in real-time, guiding patients to the best specialist at the most affordable cost. Referrals empowers provider staff with more referral information - such as benefit tiers, preferred providers, and patient payment implications. Administrative staff becomes better equipped to navigate complex sub-networks, while health plans optimize in-network referrals to reduce leakage and lower costs.
- **Authorizations:** Lets provider offices submit authorizations to health plans and access real-time authorization information, such as status updates and approvals. The authorizations workflow is optimized to make it simple for health plans to configure fields and add additional business logic and links to third party applications. Providers can upload any documents needed for authorization processing, further streamlining workflows and lowering costs.
- **Document Exchange:** Modernizes communication between health plans and providers by transmitting administrative and clinical information in real-time. This application lets health plans and providers share risk adjustment information, quality measurement data, and performance reports, among other data. Providers are notified of care gaps within their existing workflows, making it easy to upload supporting documents. NaviNet Open Document Exchange enables health plans and providers to thrive in a world of value-based care by providing real-time access to critical information at the point of care.
- **API Capabilities:** A series of secure Application Programming Interfaces (APIs) offer provider and revenue cycle organizations connectivity to payers via the NaviNet Open platform. The APIs enable faster information retrieval and easier payer access through a secure real-time, HIPAA compliant gateway to payers. The workflows include Eligibility & Benefits, Claim Status Inquiry, Authorizations, and Referrals. NaviNet also offers APIs for payers to access the secure and flexible NaviNet Open Document Exchange platform.

NaviNet AllPayer

NaviNet AllPayer provides standard eligibility, benefit, and claim status information to provider offices for over 1,000 commercial and government plans and CMS for Medicare beneficiaries through the NaviNet portal. Building on the rich, multi-payer experience of NaviNet Open, NaviNet AllPayer allows provider offices, and payer COB and Payment Integrity teams, to quickly find the information they need, without having to jump between portals or spend unnecessary time on the phone with health plans.

OpenNMS

OpenNMS is an open-source network monitoring solution for enterprise-grade networks. It empowers businesses to monitor, manage, maintain, and visualize their networks to better understand health and performance for faster remediation. OpenNMS solutions monitor system alerts and events and other key performance indicators in IT infrastructure. Advanced network traffic flows and routing analysis capability ensures critical data flows at scale. OpenNMS customers include some of the largest networks in existence, covering the healthcare, technology, energy, finance, government, education, retail and industrial sectors, many with tens of thousands of networked devices.

OpenNMS solutions are delivered as two different, completely open-source distributions: Horizon and Meridian. Both distributions are built from the same open source code base; however, the release cycle and the support options available vary for each:

- **Horizon (Community):** Following the "release early, release often" model, OpenNMS Horizon contains all of the newest features developed for the platform. Horizon is freely available to download and contains the newest features that are updated on a rapid release schedule.

- **Meridian (Enterprise):** OpenNMS Meridian is made available via a subscription service that provides access to an optimized and very stable version of OpenNMS that maximizes the platform's value and minimizes the effort required to maintain it. Features that have proven to be stable and effective in Horizon are merged into Meridian.

The following are some of the key features that provide scalability and analytics capability into the OpenNMS platform:

- Architecture for Learning Enabled Correlation (ALEC) is our artificial intelligence/machine learning (AI/ML)-based analytics solution that provides insights into alarm/event correlation, anomaly detection, and root cause analysis (RCA).
- Minion is a vertically scalable application that acts as "eyes and ears" for the core OpenNMS application by extending the platform reach into remote and disparate edges of the network.
- Sentinel is a horizontally scalable application that scales the platform capacity by offloading memory and CPU workloads from the core OpenNMS application.
- Application Perspective Monitoring (APM) enables remote polling of network components by using remote minion applications to look at other parts of the network from "the outside in", enabling improved understanding of availability and latency.

Connected Care (DCX, HBox and VCX)

Our connected care software and hardware solutions, which included the products known as DCX (formerly DeviceConX), VCX (formerly VitalsConX), HBox and Shuttle Cable, enabled the near real-time collection and integration of quantifiable biometric and phenotypic data into EHRs and other clinical systems. On January 13, 2020, we entered into an asset purchase agreement with Masimo Corporation, VCCB Holdings, Inc., and NantWorks, LLC to sell our assets related to our "Connected Care" business, including DCX, VCX, HBox and Shuttle Cable. We completed the sale on February 3, 2020. See "Management's Discussion and Analysis of Financial Condition and Results of Operations" for additional information.

GPS Cancer and Omics Core

GPS Cancer is a comprehensive molecular profile that integrates whole genome/exome (DNA) sequencing of tumor and normal germline samples and whole transcriptome (RNA) sequencing, providing oncologists with insights into the unique molecular signature of a patient's cancer to inform personalized treatment strategies. The results of the GPS Cancer profile can provide oncologists with insight into cancer therapies that may have potential benefit - including active clinical trials - and those therapies to which the cancer may be resistant. GPS Cancer profiling is conducted in CLIA-certified and CAP-accredited laboratories.

GPS Cancer compares a total of 6 billion DNA base pairs between a patient's healthy normal (or germline) sample and the tumor sample (usually Formalin-Fixed, Paraffin-Embedded-FFPE or fresh frozen tissue) each encoding for over 20,000 genes. All the RNA (over 200,000 transcripts) from the tumor sample is sequenced to confirm and give evidence of expression of mutations found in the genome. We identify affected molecular pathways that are drivers of a patient's cancer by analyzing DNA and RNA sequence data against our curated database of over 15,000 nodes within approximately 1,500 protein pathways.

Omics Core is an FDA authorized in-vitro diagnostic built on a custom-targeted whole exome sequencing platform that reports both overall tumor mutation burden in tumor specimens from 19,396 protein-coding genes (whole exome) and somatic alterations (point mutations, small insertions and deletions) in 468 cancer-relevant genes.

Cancer is increasingly understood to be a heterogeneous collection of rare diseases. As such, understanding genomic alterations in tumor samples can help to identify potential treatment options for the personalized management of people with cancer.

Whole genome/exome sequencing of a person's tumor sample against their normal sample highlights molecular alterations that are specific to their tumor DNA, and RNA sequencing subsequently confirms the alterations identified in the DNA of a person's tumor. Whole genome/exome sequencing and RNA sequencing can provide vital clinical information about individual molecular alterations in tumors that result in abnormal proteins, which can be important targets for many cancer therapies.

Molecular profiling identifies genomic alterations with high clinical relevance to each person's tumor. The alterations are then matched to drugs that might be effective against tumors containing the specific change. By identifying the totality of alterations from whole genome/exome sequencing, homing in on alterations that are associated with protein expression from RNA sequencing, a more accurate and comprehensive molecular profile is assembled that can inform the therapeutic options available to oncology care providers and their patients.

Our GPS Cancer test results includes information on a patient's pharmacogenomic profile to provide insight on germline alterations implicated in increased toxicity or altered metabolism of anti-cancer drugs. This information is presented in a patient's GPS Cancer test report.

By enabling informed therapy selection and utilization, GPS Cancer and Omics Core bring various opportunities to impact both cost and quality of care for individuals with cancer, such as:

- *Avoiding ineffective therapy usage:* By providing molecular insight into sensitivity or resistance to specific drugs, GPS Cancer may help oncologists identify regimens that are unlikely to benefit the patient. This insight may help avoid use of high-cost therapies that are unlikely to help the patient.
- *Decreasing treatment cycles through improved therapy selection:* Therapies selected based on molecular evidence of likely benefit may require fewer cycles to achieve response.
- *Increasing clinical trial participation:* For many advanced cancers, standard-of-care drug options are quickly exhausted, and clinical trials represent a source of additional options for patients. GPS Cancer helps identify trials that may be applicable to the patient based on their tumor's molecular profile.

NantHealth Systems Infrastructure to Enable NantHealth Solutions:

Our unique interoperable systems infrastructure has been built over the last decade to address the knowledge, care delivery and payer domains.

We host our applications and serve all our clients from four redundant data centers in geographically diverse locations. These infrastructure-hosting services also include capabilities such as secure server and application hosting, secure offsite backup, disaster recovery and business continuity solutions. We are expanding our infrastructure using a hybrid-cloud model to leverage the flexibility and scalability available at commercial cloud providers.

Due to the sensitive nature of our clients' data, we have a heightened focus on data security and protection. We have implemented healthcare IT industry-standard processes, policies and tools through all levels of our software development and network administration, including regularly scheduled vulnerability scanning and third-party penetration testing to reduce the risk of vulnerabilities in our system.

Our Eviti clinical decision support platform achieved initial full URAC accreditation in Health Utilization Management, or HUM, during September 2010 and subsequently re-accredited every three years – the most recent during August 2019 for another three-year period.

Our NaviNet platform has been accredited under the Health Network Accreditation Program of the Electronic Healthcare Network Accreditation Commission since 2006 and was most recently re-accredited in February 2020 for two years.

Through our affiliate, NantOmics, LLC ("NantOmics"), we have access to a HIPAA-compliant, secure and scalable cloud computing, storage and transport infrastructure capable of processing, storing and transporting petabytes of diverse, protected patient data. Our access to CAP- and CLIA-certified sequencing capability, coupled with supercomputer environments, enables us to deliver comprehensive genomic analysis.

Our Relationship with NantOmics and Allscripts

We have worldwide rights from NantOmics to resell the proprietary GPS Cancer and Omics Core products to institutional clients, including payers, self-insured employers and healthcare providers. NantOmics provides whole genome/exome and RNA sequencing, along with related computational and data management and bioinformatics services. We provide these services as part of our comprehensive molecular analysis offering. Under the agreement, we are responsible for various aspects of delivering our sequencing and molecular analysis solutions, including patient engagement and communications with providers such as providing interpretations of our GPS Cancer reports and resolving any disputes, ensuring customer satisfaction, and managing billing and collections. Our agreement for exclusive rights from NantOmics expired in December 2020, subject to renewal for up to an additional nine years if certain thresholds are met. The terms of the agreement included an annual minimum of \$2.0 million in fees for years 2016-2020 paid to NantOmics. On December 31, 2020, we entered into an agreement with NantOmics to automatically renew at the end of December 2020 for a non-exclusive renewal term and to waive the annual minimum of \$2.0 million in fees for the 2020 calendar year and without an annual minimum in each year thereafter.

On August 3, 2017, we entered into an asset purchase agreement with Allscripts Healthcare Solutions, Inc. ("Allscripts"), pursuant to which we agreed to sell to Allscripts substantially all of the assets of the Company's provider/patient engagement solutions business, including our FusionFX solution and components of its NantOS software connectivity solutions. The sale was completed on August 25, 2017.

Concurrent with the sale to Allscripts and as contemplated by the asset purchase agreement, we and Allscripts modified the amended and restated mutual license and reseller agreement dated June 26, 2015, which was further amended on December 30, 2017, such that, among other things, we committed to deliver a minimum of \$95.0 million of total bookings over a ten-year period (“Bookings Commitment”) from referral transactions and sales of certain Allscripts products under this agreement. We also agreed that Allscripts shall receive at least \$0.5 million per year in payments from bookings (the “Annual Minimum Commitment”). If the total payments received by Allscripts from bookings during such period are less than the Annual Minimum Commitment, we shall pay to Allscripts the difference between the Annual Minimum Commitment and the total amount received by Allscripts from bookings during such period. In the event of a Bookings Commitment shortfall at the end of the ten-year period, we may be obligated to pay 70% of the shortfall, subject to certain credits. We will earn 30% commission from Allscripts on each software referral transaction that results in a booking with Allscripts. We account for the Bookings Commitment at its estimated fair value over the life of the agreement and, as of December 31, 2020, we estimate the total liability to be \$33.9 million.

Our Clients

NantHealth solutions and technology platforms are used by key healthcare stakeholders, including healthcare providers, payers, self-insured employers, academic institutions and biotechnology and pharmaceutical companies, and our network monitoring solutions are used by stakeholders in the logistics, telecommunication, and other industries, to automate, understand, and act on data while keeping it secure and scalable. NantHealth solutions, coupled with our engagement methodology, is designed to be tailored to meet the large-scale needs of governmental organizations and private entities while remaining convenient, intuitive and configurable at the user level. We believe that this provides us with a significant advantage over a siloed, single vendor approach, which often requires the removal or replacement of existing information technology infrastructure and applications.

Our total revenue was \$73.2 million and \$77.4 million in 2020 and 2019, respectively. For the years ended December 31, 2020 and 2019, there were four and three customers, respectively, each accounting for more than 10% of our revenue.

Sales and Marketing

Our sales organization is primarily comprised of direct sales executives and pre-sales support teams organized by account type and domain and subject matter expertise. We also leverage strategic reseller arrangements and a channel relationship coverage team.

- **Direct sales organization:** We leverage domain and subject matter expertise, market credibility, thought leadership, and relationships of our executives, senior management, and product leaders in our sales efforts. Our direct sales organization is by product ownership. These direct coverage teams include both sales professionals searching for new accounts and client engagement sales professionals responsible for developing existing accounts. Furthermore, sales professionals have unique expertise and specialized coverage for health plans, self-insured employers, health systems, and individual providers. Our account management organization is responsible for the continuity of current client relationships and the expansion of those relationships to include additional solutions and services.

We have a pre-sales organization that includes clinical, business and technical customer alignment teams to support our sales organization in addition to executive sponsorship with members of our senior management team.

- **Resale and channel partnership:** In the United States, we have entered into strategic resale arrangements with major partners, including EHR vendors (including Allscripts), in-hospital medical devices manufacturers and health plans who resell our solutions to their customer base. Internationally, we have entered into resale arrangements with other strategic distributors to accelerate our market adoption. Reseller revenue in 2020 and 2019 was \$2.9 million and \$4.4 million, respectively.

We also maintain business relationships with individuals and organizations that promote or support our sales or services. We refer to these individuals and organizations as our channel partners. These channel partners generally do not make sales directly like our resale partners, but instead provide us with leads that we use to develop new business through our direct sales force. These relationships enable access to broader hospital and physician clients, leading software solutions and multiple cross-selling opportunities.

We complement our sales efforts with a marketing organization that plans and execute marketing and communication strategies that are centered on initiatives that drive awareness of our company and solutions. These initiatives include educating the market about our company broadly, as well as solutions-specific campaigns for lead generation. Marketing efforts also include participation in speaking engagements and strategic interfacing with key business and trade media personnel. We employ a broad array of specific events to facilitate these initiatives, including, but not limited to, sponsorship and partnership of key industry conferences such as HIMSS and or AHIP, events and client-focused programs such as key partner user groups.

Our sales cycle can vary significantly and typically ranges from 6 months to 18 months from initial contact to contract execution. The sales cycle significantly differs based on the domain, type of solution and size of the client. Implementation, training and professional services are normally rendered based on a mutually agreed upon timetable.

Competition

The competitive landscape is highly fragmented, and to our knowledge, no single competitor currently offers similarly diverse capabilities and solution offerings. As a result, our primary competitors are characterized relative to each of our platforms or solutions:

- Payer-provider collaboration vendors, such as Availity, LLC, Change Healthcare, Inc., Experian Information Solutions, Inc. (including its Experian Health/Passport division), Healthx, Inc. and Health Trio, LLC;
- Payer-Provider Disease Treatment Decision Support vendors, including The Advisory Board Company, Castlight Health, Evolent Health, eviCore Healthcare, HealthCatalyst, Inc., International Business Machines Corporation, or IBM, Inovalon Holdings, Inc., NCH Management Systems, Inc. (dba New Century Health), Oncology Analytics, Inc., and Truven Health Analytics (acquired by IBM).
- Molecular analysis vendors, such as Caris Life Sciences, Inc., Foundation Medicine, Inc., Guardant Health, Inc., Paradigm Diagnostics, Inc., Personal Genome Diagnostics, Inc. and Tempus Labs;
- Network monitoring vendors, including Zabbix, LLC, LogicMonitor, Inc., SolarWinds Worldwide, LLC and Datadog, Inc.

The principal competitive factors in our industry include:

- Breadth and depth of application functionality;
- Ease of use and performance;
- Network strength and level of user adoption;
- Client testimonials and recommendations;
- Breadth of client base;
- Cloud-based delivery model;
- Competitive and understandable pricing;
- Ability to deliver actionable information in a relevant time period;
- Ability to demonstrate customer's ROI and improvements to clinical outcomes;
- Size and scope of payer clinical policy knowledge;
- Sales and marketing capabilities of vendor;
- Financial stability of vendor;
- Ability to integrate with legacy enterprise infrastructures and third-party applications; and
- Ability to innovate and respond rapidly to client needs and regulatory changes.

We believe we will compete favorably despite competing against a broad, diverse set of businesses and with increasing competition as other established and emerging companies enter our industry, client requirements evolve, and new products and technologies are introduced. Moreover, some of our actual and potential competitors have certain advantages over us, such as greater financial, technical, marketing, research and development and other resources, stronger brand and business user recognition, larger installed customer bases, larger intellectual property portfolios and broader global distribution and presence.

Research and Development

Our research and development efforts consist primarily of new product research and development, significant product improvements, the development of our knowledge base, the development of our online tools, such as our online portal and mobile applications, and the improvement and augmentation of our data and analytics infrastructure.

Our ability to compete and attract new clients depends, in large part, on our continuous commitment to rapidly introduce new applications, technologies, features, and functionality. Our research and development team is responsible for the design and development of our applications and software tools. We follow state-of-the-art practices in software development using modern programming languages, data storage systems, and other tools.

Research and development expenses were \$17.3 million and \$13.9 million for the years ended December 31, 2020 and 2019, respectively.

We expect that our overall research and development expenses will increase in absolute dollars as we continue to innovate our informational technology capabilities, develop additional products, and expand our data management resources.

Intellectual Property

We strive to protect and enhance the proprietary technology, inventions, and improvements that are commercially important to our business, including seeking, maintaining, and defending patent rights, whether developed internally or acquired from third parties. Our policy is to seek to protect our proprietary position by, among other methods, filing patent applications in the United States and in jurisdictions outside of the United States related to our proprietary technology, inventions, and improvements that are important to the development and implementation of our business. We also rely on trade secrets and know-how relating to our proprietary technology, continuing innovation, and acquisition and in-licensing opportunities to develop, strengthen, and maintain our proprietary position in the field of molecular diagnostics and healthcare technology products and services.

Our commercial success may depend in part on our ability to obtain and maintain patent and other proprietary protection for our technology, inventions, and improvements; to preserve the confidentiality of our trade secrets; to defend and enforce our proprietary rights, including our patents; and to operate without infringing on the valid and enforceable patents and other proprietary rights of third parties.

We have developed and acquired patents and patent applications and we possess know-how and trade secrets relating to the development and commercialization of healthcare technology products and services. As of December 31, 2020, our patent portfolio consisted of the following matters relating to our proprietary technology and inventions: (i) thirteen (13) issued U.S. utility patents and two (2) issued U.S. design patents; (ii) nineteen (19) pending U.S. utility patent applications; (iii) thirteen (13) issued patents in jurisdictions outside the United States; and (iv) seven (7) patent applications pending in jurisdictions outside the United States. Five (5) of these assets are jointly owned. We believe we have intellectual property rights that are necessary to commercialize our healthcare technology products and services. However, our patent applications may not result in issued patents, and, even if issued, the patents may be challenged and invalidated. Moreover, our patents and patent applications may not be sufficiently broad to prevent others from practicing our technologies or developing competing products. We also face the risk that others may independently develop similar or alternative technologies or may design around our proprietary property.

Individual patents extend for varying periods of time, depending upon the date of filing of the patent application, the date of patent issuance, and the legal term of patents in the countries in which they are obtained.

Generally, patents issued for applications filed in the United States are effective for 20 years from the earliest effective non-provisional filing date. The patent term may be adjusted to compensate for delayed patent issuance, when such delays are caused by the patent office or successful appeals against patent office actions. The duration of patents outside of the United States varies in accordance with provisions of applicable local law, but often is also 20 years from the earliest effective non-provisional filing date. We estimate that our issued U.S. patents will expire on dates ranging from 2022 to 2036. If patents are issued on our pending U.S. patent applications, the resulting patents are projected to expire on dates ranging from 2026 to 2040. However, the actual protection afforded by a patent varies on a product-by-product basis, from country-to-country, and depends upon many factors, including the type of patent, the scope of its coverage, the availability of legal remedies in a particular country, and the validity and enforceability of the patent.

The patent positions of companies like ours are generally uncertain and involve complex legal and factual questions. No consistent policy regarding the scope of claims allowable in patents in the field of healthcare information technology has emerged in the United States. The patent situation outside of the United States is even more uncertain. Changes in either the patent laws or their interpretation in the United States and other countries may diminish our ability to protect our inventions and enforce our intellectual property rights, and more generally could affect the value of our intellectual property. In particular, our ability to prevent third parties from making, using, selling, offering to sell, or importing products that infringe our intellectual property will depend in part on our success in obtaining and enforcing patent claims that cover our technology, inventions, and improvements.

With respect to our intellectual property, we cannot be sure that patents will be granted with respect to any of our pending patent applications or with respect to any patent applications filed by us in the future, nor can we be sure that any of our existing patents or any patents that may be granted to us in the future will be commercially useful in protecting our products and the processes involved in using those products. Moreover, even our issued patents do not guarantee us the right to practice our technology in relation to the commercialization of our products. In particular, the area of patent and other intellectual property rights in healthcare and network monitoring technology is an evolving one with many risks and uncertainties, and third parties may have blocking patents that could be used to prevent us from commercializing our products and practicing our technology. Our issued patents and those that may issue in the future may be challenged, invalidated, or circumvented, which could limit our ability to stop competitors from marketing related products or limit the length of the term of patent protection that we may have for our products. In addition, the rights granted under any issued patents may not provide us with protection or competitive advantages against competitors with similar technologies. Furthermore, our competitors may independently develop similar technologies that effectively compete with our technology. For these reasons, third parties may compete with our products and services. Moreover, because of the extensive time required for development and testing of a potential product or service, it is possible that, before any particular product or service can be commercialized, any related patent may expire or remain in force for only a relatively short period following commercialization, thereby reducing any advantage of the patent.

We may also rely, in some circumstances, on trade secrets to protect our technology. However, trade secrets are difficult to protect. We seek to protect our technology and product candidates, in part, by entering into confidentiality agreements with those who have access to our confidential information, including our employees, contractors, consultants, collaborators, and advisors. We also seek to preserve the integrity and confidentiality of our proprietary technology and processes by maintaining physical security of our premises and physical and electronic security of our information technology systems. Although we have confidence in these individuals, organizations, and systems, agreements or security measures may be breached and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or may be independently discovered by competitors. To the extent that our employees, contractors, consultants, collaborators, and advisors use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions.

For this and more comprehensive risks related to our proprietary technology, inventions, improvements and products, please see the section captioned "Risk Factors-Risks Related to Intellectual Property."

Human Capital and Culture

Our key human capital management objectives are focused on attracting, retaining, and developing the highest quality talent. To support these objectives, our human resources programs are designed to develop talent to prepare them for critical roles and leadership positions for the future; reward and support employees through competitive pay, benefit, and recognition programs; enhance our culture through efforts aimed at making the workplace more engaging and inclusive; acquire talent and facilitate internal talent mobility to create a high-performing, diverse workforce; engage employees as brand ambassadors of the Company's products and services; and evolve and invest in technology, tools, and resources to enable employees at work.

We view our employees and company culture as integral to the successful execution of our vision and mission. As a result, our leadership team prioritizes establishing trusting relationships with our clients, our partners, and each other. We encourage our employees to "rise up" to the challenge and believe that this collective mindset has enabled us to attract and retain some of the best minds in technology, bioscience and healthcare to build and advance our offering. Our core values, which we seek to reflect in our work are:

- **Clarity:** conveying our mission clearly, coherently and intelligibly, and empowering our stakeholders with information required to make good decisions.
- **Empathy:** understanding and sharing the feelings of others by putting yourself in another's place.
- **Collaboration:** working with others to create solutions.
- **Pioneering:** exploring and developing original solutions that make a meaningful impact on our community, the market, or society at large.
- **Community:** creating a feeling of identity and fellowship with others resulting from common values and goals.
- **Integrity:** always being honest, honorable and accountable with adherence to moral and ethical principles.

As of December 31, 2020, we employed a total of 356 employees in the United States, Canada, and the United Kingdom. Our global workforce is comprised of approximately 99% full-time and 1% part-time employees. Employee engagement and retention are core tenets of our leadership focus and are monitored and measured as gauges of our corporate performance and organizational health.

None of our employees are represented by a labor union or covered by a collective bargaining agreement. We have not experienced any work stoppages, and we consider our relations with our employees to be good.

Government Regulation

The healthcare industry and the practice of medicine are governed by an extensive and complex framework of federal and state laws, which continue to evolve and change over time. The costs and resources necessary to comply with these laws are high. Our profitability depends in part upon our ability, and that of our affiliated providers and independent contractors, to operate in compliance with applicable laws and to maintain all applicable licenses. A review of our operations by courts or regulatory authorities could result in determinations that could adversely affect our operations, or the healthcare laws and regulations could change in a way that restricts our operations. To the extent any of our employees or third-party contractors engages in any misconduct or activity in violation of an applicable law, we may be subject to increased liability under the law or increased government scrutiny. If any such action is instituted against us, and we are not successful in defending ourselves or asserting our rights, such action could have a significant impact on our business, including the imposition of significant fines or other sanctions. Complying with any new legislation and regulations could be time-intensive and expensive, resulting in a material adverse effect on our business.

As a digital health company, our operations are subject to comprehensive United States federal, state and local and international regulation in the jurisdictions in which we do business. Our ability to operate profitably will depend in part upon our ability, and that of our affiliated providers, to maintain all necessary licenses, permits, certifications, or other regulatory authorizations and to operate in compliance with applicable laws and rules. Those laws and rules continue to evolve, and we therefore devote significant resources to monitoring developments in healthcare and medical practice regulation. As the applicable laws and rules change, we are likely to make conforming modifications in our business processes from time to time. In some jurisdictions where we operate, neither our current nor our anticipated business model has been the subject of formal judicial or administrative interpretation. We cannot be assured that a review of our business by courts or regulatory authorities will not result in determinations that could adversely affect our operations or that the healthcare regulatory environment will not change in a way that impacts our operations.

In response to the COVID-19 pandemic, state and federal regulatory authorities have temporarily loosened or waived certain regulatory requirements in order to increase the availability of telehealth services for the duration of the COVID-19 public health emergency. For example, many state governors issued executive orders permitting physicians and other health care professionals to practice in their state without any additional licensure or by using a temporary, expedited or abbreviated licensure or registration process so long as they hold a valid license in another state. In addition, changes were made to the Medicare and Medicaid programs (through waivers and other regulatory authority) to increase access to telehealth services by, among other things, increasing reimbursement, permitting the enrollment of out of state providers and eliminating prior authorization requirements. It is uncertain how long these COVID-19 related regulatory changes will remain in effect and whether they will continue beyond this public health emergency period. A return to the status quo could have a materially negative impact on any commercial agreements we have entered into during 2020 or any time before the termination of the COVID-19 public health emergency. For example, we may be required to change our operations or terminate certain services when the government reinstates certain healthcare regulatory requirements or restrictions that were in place before the COVID-19 public health emergency, including certain restrictions on the reimbursement of telehealth visits to Medicare beneficiaries and state licensure requirements for healthcare professionals who practice medicine across state lines.

The products and services that we provide are regulated by federal, state and foreign governmental authorities. Failure to comply with the applicable laws and regulations can subject us to significant administrative or enforcement actions by the government, government investigation, repayment of amounts previously paid to us, significant civil and criminal penalties, loss of licensure, certification, or accreditation, exclusion from government healthcare programs, corporate integrity agreements, or litigation. The significant areas of regulation are summarized below.

Clinical Laboratory Improvement Amendments of 1988 and State Regulation

The Omics services we perform fall under CLIA. A clinical laboratory is required to hold certain federal and state licenses, certifications, and permits to conduct business. As to federal certifications, Congress passed CLIA in 1988, establishing quality standards for all laboratory testing to ensure the accuracy, reliability, and timeliness of patient test results regardless of where the test was performed. The laboratory that performs our Omics services is CLIA-certified and is also required to meet certain laboratory licensing requirements for states with regulations beyond CLIA.

Under CLIA, a laboratory is any facility which performs laboratory testing on specimens derived from humans for the purpose of providing information for the diagnosis, prevention or treatment of disease, or the impairment or assessment of health. CLIA regulates virtually all clinical laboratories by requiring they be certified by the federal government and comply with various operational, personnel, facilities administration, quality, and proficiency requirements intended to ensure that their clinical laboratory testing services are accurate, reliable, and timely. Laboratories must register and list their tests with CMS, the agency that oversees the CLIA program. CLIA compliance and certification is also a prerequisite to be eligible to bill for services provided to governmental payer program beneficiaries and for many private payers. CLIA is user-fee funded. Therefore, all costs of administering the program must be covered by the regulated facilities, including certification and survey costs.

Clinical laboratories are subject to survey and inspection every two years to assess compliance with program standards and may be subject to additional unannounced inspections. Laboratories performing high complexity testing are required to meet more stringent requirements than laboratories performing fewer complex tests. In addition, a laboratory, like the one which performs our Omics services, that is certified as “high complexity” under CLIA, may develop, manufacture, validate, and use proprietary tests referred to as laboratory developed tests, or LDTs. CLIA requires full validation, including accuracy, precision, specificity, sensitivity, and establishment of a reference range for any LDT used in clinical testing.

In addition to the federal certification requirements under CLIA, certain states require clinical laboratories to maintain a state license. State licensure authorities typically regulate the day-to-day operations of a clinical laboratory, including the training and skills required of its personnel and quality control. Certain states may also mandate proficiency testing, which requires the clinical laboratory to verify the accuracy of any test or procedure it performs. In addition, certain states require out-of-state laboratories to be licensed if they accept specimens from those states. CLIA provides that a state may adopt laboratory regulations that are more stringent than those under federal law. In some cases, state licensure programs substitute for the federal CLIA program. In other instances, the state's regulations may be in addition to the CLIA program. If a laboratory is out of compliance with state laws or regulations governing licensed laboratories, penalties for violation vary from state to state but may include suspension, limitation, revocation or annulment of the license, assessment of financial penalties or fines, or imprisonment.

FDA

The FDA regulates the sale and distribution in interstate commerce of medical devices under the Federal Food, Drug, and Cosmetic Act, or the FDCA, including in vitro diagnostic devices, reagents, and instruments used to perform diagnostic testing. Devices must undergo premarket review by the FDA prior to commercialization unless the device is of a type exempted from such review by statute, regulation, or pursuant to the FDA's exercise of enforcement discretion. Although historically the FDA has not exercised its authority to actively regulate the development and use of LDTs, which are tests that are designed, manufactured, validated, and used within a single laboratory, more recently, the FDA has issued warning letters to certain genomics labs for illegally marketing genetic tests that claim to predict patients' responses to specific medications, noting that the FDA has not created a legal “carve-out” for LDTs and retains discretion to take action when appropriate, such as when certain genomics tests raise significant public health concerns. As manufacturers develop more complex genetic tests, it is likely that the FDA will more actively regulate LDTs in the future, which will impose greater burdens on laboratories to obtain the necessary premarket notification or approval from the FDA as well as comply with applicable post-market regulatory obligations. Such requirements will likely delay market entry and will require more resources and time commitment from clinical laboratories in the in vitro diagnostic space.

In October 2014, the FDA issued draft guidance documents stating that the FDA intends to change its policy and describing an approach to regulating LDTs using a risk-based, phased-in approach. In November 2016, the FDA stated that it had decided to delay finalizing its draft guidance on regulating LDTs, and it would be seeking input from the new presidential administration and Congress on the subject. Based on the request of stakeholders and the significant amount of feedback to the 2014 Draft Guidance, in January 2017, the FDA issued a Discussion Paper on LDTs in which it announced that it would not issue a final guidance on the oversight of LDTs and provided a prospective oversight framework that focuses on new and significantly modified high and moderate risk LDTs. Subject to certain limitations, the proposed focused oversight appears to exempt a wide range of LDTs from FDA's oversight, which include, but are not limited to, previously marketed LDTs (these “grandfathered” LDTs would still be subject to adverse event reporting), traditional LDTs, and low risk LDTs (also subject to adverse event reporting). In the Discussion Paper, the FDA proposes a risk-based, phased in approach for premarket review of new and significantly modified LDTs and such premarket review would not be duplicative of CMS's post-market oversight of laboratory operations or clinical utility determinations. The FDA also proposes to leverage existing CMS/CLIA requirements related to quality systems, while focusing its assessment on FDA Quality System requirements not covered by CLIA, and expanding third party premarket review, including coordination with a range of programs, including New York's Clinical Laboratory Evaluation Program.

Recently, the Department of Health and Human Services, or HHS, announced rescission of guidance and other informal issuances of FDA regarding premarket review of LDT absent notice-and-comment rulemaking, stating that, absent notice-and-comment rulemaking, those seeking approval or clearance of, or an emergency use authorization, for an LDT may nonetheless

voluntarily submit a premarket approval application, premarket notification or an Emergency Use Authorization request, respectively, but are not required to do so. However, laboratories opting to use LDTs without FDA premarket review or authorization would not be eligible for liability protection under the Public Readiness and Emergency Preparedness Act, or the PREP Act. While this action by HHS is expected to reduce the regulatory burden on clinical laboratories certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA) that develop LDTs, it is unclear how this action as well as future legislation by federal and state governments and FDA will impact the industry, including our business and that of our customers. HHS' rescission policy may change over time. Congress or the Biden administration could also enact legislation restricting LDTs. Any restrictions on LDTs by the FDA, HHS, Congress, or state regulatory authorities may decrease the demand for our products.

That said, based on the November 2018 FDA Statement and warning letters issued by the FDA in 2019 to certain genomics labs for illegally marketing genetic test that claims to predict patients' responses to specific medications, the FDA may increase its scrutiny and regulation of certain LDTs. In the meantime, NantHealth has obtained 510(k) clearance from the FDA for its Omics Core assay and the laboratory that performs the molecular diagnostic testing (including the Company's LDT offering, GPS Cancer) will maintain its CLIA certification.

The FDA regulations pertaining to medical devices govern, among other things, the research, design, development, pre-clinical and clinical testing, manufacture, safety, effectiveness, clearance or approval, record-keeping, packaging, labeling, storage, adverse event reporting, advertising, promotion, marketing, sales, distribution, and import and export of medical devices. Pursuant to the FDCA, and its implementing regulations, medical devices are subject to varying degrees of regulatory control and are classified in one of three classes depending on the controls the FDA determines necessary to reasonably ensure their safety and effectiveness.

In general, Class I devices are those for which reasonable assurance of safety and effectiveness can be provided by adherence to the FDA's general controls for medical devices, which include applicable portions of the FDA's Quality System Regulation ("QSR"), facility registration and product listing, reporting of adverse medical events, and appropriate, truthful, and non-misleading labeling, advertising and promotional materials. Many Class I devices are exempt from premarket regulation; however, some Class I devices require premarket clearance by the FDA through the 510(k) premarket notification process described below.

Class II devices are generally subject to the FDA's general controls, and any other special controls, such as performance standards, post market surveillance, and FDA guidelines, deemed necessary by the FDA to provide reasonable assurance of the devices' safety and effectiveness. Premarket review and clearance by the FDA for Class II devices are accomplished through the 510(k) premarket notification procedure, although some Class II devices are exempt from the 510(k) requirements. Premarket notifications are subject to user fees, unless a specific exemption applies. To obtain 510(k) clearance, a manufacturer must submit a premarket notification demonstrating that the proposed device is "substantially equivalent" to a predicate device, which is a previously cleared 510(k) device or a pre-amendment device that was in commercial distribution before May 28, 1976, for which the FDA has not yet called for the submission of a premarket approval, or PMA, application. In determining substantial equivalence, the FDA assesses whether the proposed device has the same intended use and technical characteristic as the predicate device, or whether the proposed device has different technological characteristics, and the information submitted in the premarket notification demonstrates the device is as safe and effective as a legally marketed device and does not raise new questions of safety and effectiveness than the predicate device. The FDA may request additional information, including clinical data. Under the Medical Device User Fee Amendment of 2012, the FDA's performance goal for reviewing a 510(k) submission is 90 days, but the FDA's review of the premarket notification can take significantly longer if the FDA requests additional information or raises new questions during the review process. If the FDA determines that the device is substantially equivalent to the predicate device(s), the subject device may be marketed upon grant of FDA clearance. If a manufacturer obtains a 510(k) clearance for its device and then makes a modification that could significantly affect the safety or effectiveness of the device, or a major modification in the intended use of the device, a new premarket notification must be submitted and cleared by the FDA.

Class III devices are those deemed by FDA to pose the greatest risk, such as those that are life-sustaining or life-supporting and for which reasonable assurance of the device's safety and effectiveness cannot be assured solely by the general controls and special controls described above. Some pre-amendment Class III devices for which the FDA has not yet required a PMA require the FDA's clearance of a premarket notification in order to be marketed. However, most Class III devices are required to undergo the PMA process in which the manufacturer must demonstrate reasonable assurance of the safety and effectiveness of the device to the FDA's satisfaction. A PMA application must provide valid scientific evidence, typically extensive preclinical and clinical trial data, and information about the device and its components regarding, among other things, device design, manufacturing, and labeling. PMA applications (and supplemental PMA applications) are subject to significantly higher user fees than are 510(k) premarket notifications. Some PMA applications are exempt from a user fee, for example, a small business's first PMA.

If a new medical device does not qualify for the 510(k) premarket notification process because no predicate device to which it is substantially equivalent can be identified, the device is automatically classified into Class III. The Food and Drug Administration Modernization Act of 1997 established a new route to market for low to moderate risk medical devices that are automatically placed into Class III due to the absence of a predicate device, called the "Request for Evaluation of Automatic Class III Designation," or the de novo classification process. This process allows a manufacturer whose novel device is automatically classified into Class III to request down-classification of its medical device into Class I or Class II on the basis that the device presents low or moderate risk, rather than requiring the submission and approval of a PMA. If the manufacturer seeks reclassification into Class II, the manufacturer must include a draft proposal for special controls that are necessary to provide a reasonable assurance of the safety and effectiveness of the medical device. The FDA may reject the reclassification petition if it identifies a legally marketed predicate device that would be appropriate for a 510(k) or determines that the device is not low to moderate risk and requires PMA or that general controls would be inadequate to control the risks and special controls cannot be developed.

Even if regulatory approval or clearance of a device is granted, the FDA continues to impose limitations on the uses and indications for which the device may be labeled and promoted, and the device remains subject to significant regulatory requirements. Medical devices may be marketed only for the uses and indications for which they are cleared or approved by the FDA. Device manufacturers must register their facilities and list their devices with the FDA within 30 days of an establishment beginning an activity or putting a device into commercial distribution. A device manufacturer's manufacturing processes and those of some of its suppliers are required to comply with the applicable portions of the QSR, which covers quality management, design controls, production and process controls, quality assurance, labeling, packaging, shipping, complaint handling, and adverse event reporting. Device manufacturers must submit to the FDA medical device reports for deaths, serious injuries, and certain malfunctions and report certain field corrections and product recalls or removals. Some manufacturers also may be subject to post-market surveillance regulations. Medical device establishments, including their facility records and manufacturing processes, are subject to periodic unscheduled inspections by the FDA.

Failure to comply with applicable regulatory requirements can result in enforcement action by the FDA, which may include any of the following sanctions: public warning letters, fines, injunctions, civil or criminal penalties, recall or seizure of products, operating restrictions, partial suspension or total shutdown of production, delays in or denial of 510(k) clearance or PMA applications for new products, challenges to existing 510(k) clearances or PMA applications, and a recommendation by the FDA to disallow a device manufacturer from entering into government contracts. The FDA also has the authority to request repair, replacement, or refund of the cost of any device manufactured or distributed. If a supplier fails to maintain compliance with a device manufacturer's quality requirements, the manufacturer may have to qualify a new supplier and could experience manufacturing delays as a result.

HIPAA and HITECH

Under the administrative simplification provisions of HIPAA, as amended by the HITECH Act, the HHS issued regulations that establish uniform standards governing the conduct of certain electronic healthcare transactions and protecting the privacy and security of protected health information used or disclosed by healthcare providers and other covered entities. Three principal regulations with which we are required to comply have been issued in final form under HIPAA: privacy regulations, security regulations, and standards for electronic transactions, which establish standards for common healthcare transactions. The privacy and security regulations were extensively amended in 2013 to incorporate requirements from the HITECH Act.

The privacy regulations cover the use and disclosure of protected health information by healthcare providers and other covered entities. They also set forth certain rights that an individual has with respect to his or her protected health information maintained by a covered entity, including the right to access or amend certain records containing protected health information, or to request restrictions on the use or disclosure of protected health information. The security regulations establish requirements for safeguarding the confidentiality, integrity, and availability of protected health information that is electronically transmitted or electronically stored. The HITECH Act, among other things, makes certain of HIPAA's privacy and security standards applicable to business associates of covered entities, and established certain protected health information security breach notification requirements. A covered entity must notify affected individual(s) and the HHS when there is a breach of unsecured protected health information. The HIPAA privacy and security regulations establish a uniform federal "floor" that covered entities and their business associates must meet and do not supersede state laws that are more stringent or provide individuals with greater rights with respect to the privacy or security of, and access to, their records containing protected health information. HIPAA also governs patient access to laboratory test reports. Effective October 6, 2014, individuals (or their personal representatives, as applicable), have the right to access test reports directly from clinical laboratories and to direct that copies of those test reports be transmitted to persons or entities designated by the individual.

These laws contain significant fines and other penalties for wrongful use or disclosure of protected health information. Additionally, to the extent that we submit electronic healthcare claims and payment transactions that do not comply with the electronic data transmission standards established under HIPAA and the HITECH Act, payments to us may be delayed or denied.

In addition to the federal privacy regulations, there are several state laws regarding the privacy and security of health information and personal data that are applicable to our operations. The compliance requirements of these laws, including additional breach reporting requirements, and the penalties for violation vary widely and new privacy and security laws in this area are evolving. Massachusetts, for example, has a state law that protects the privacy and security of personal information of Massachusetts residents that is more prescriptive than HIPAA. Many states have also implemented genetic testing and privacy laws imposing specific patient consent requirements and protecting test results. In some cases, we are prohibited from conducting certain tests without a certification of patient consent by the physician ordering the test. For example, California recently enacted the Genetic Information Privacy Act, California Consumer Privacy Act, or CCPA, and California Privacy Rights Act, or CPRA, which will increase our compliance costs and potential liability with respect to personally identifying and genetic information we may collect about consumers in California. Requirements of these laws and penalties for violations vary widely. We believe that we have taken the steps required of us to comply with health information privacy and security statutes and regulations in all jurisdictions, both state and federal. However, we may not be able to maintain compliance in all jurisdictions where we do business. Failure to maintain compliance, or changes in state or federal laws regarding privacy or security, could result in civil and/or criminal penalties and could have a material adverse effect on our business.

Federal, State and Foreign Fraud and Abuse Laws

In the United States, there are various fraud and abuse laws with which we must comply and we are potentially subject to regulation by various federal, state and local authorities, including CMS, other divisions of the HHS (e.g., the Office of Inspector General), the U.S. Department of Justice, and individual U.S. Attorney offices within the Department of Justice, and state and local governments. We also may be subject to foreign fraud and abuse laws.

In the United States, the federal Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting or receiving remuneration to induce, or in return for patient referrals for, or purchasing, leasing, ordering, recommending or arranging for the purchase, lease or order of, any healthcare item or service reimbursable under a governmental payer program. Courts have stated that a financial arrangement may violate the Anti-Kickback Statute if any one purpose of the arrangement is to encourage patient referrals or other federal healthcare program business, regardless of whether there are other legitimate purposes for the arrangement. The definition of "remuneration" has been broadly interpreted to include anything of value, including gifts, discounts, credit arrangements, payments of cash, consulting fees, waivers of co-payments, ownership interests, and providing anything at less than its fair market value. Recognizing that the Anti-Kickback Statute is broad and may technically prohibit many innocuous or beneficial arrangements within the healthcare industry, the HHS issued a series of regulatory "safe harbors." These safe harbor regulations set forth certain provisions, which, if met, will assure healthcare providers and other parties that they will not be prosecuted under the federal Anti-Kickback Statute. Although full compliance with these safe harbor provisions ensures against prosecution under the federal Anti-Kickback Statute, the failure of a transaction or arrangement to fit within a specific safe harbor does not necessarily mean that the transaction or arrangement is illegal or that prosecution under the federal Anti-Kickback Statute will be pursued. That said, non-compliance with all the requirements of a safe harbor can increase the risk of the transaction or arrangement and may increase the risk of government scrutiny. Many states also have anti-kickback statutes, some of which may apply to items or services reimbursed by any third-party payer, including commercial insurers.

In addition, federal false claims laws, including the federal civil False Claims Act, prohibit, among other things, any person or entity from knowingly presenting, or causing to be presented, a false claim for payment to, or approval by, the federal government or knowingly making, using, or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government. As a result of a modification made by the Fraud Enforcement and Recovery Act of 2009, a claim includes "any request or demand" for money or property presented to the U.S. government. Recently, several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies' marketing of the product for unapproved, and thus generally non-reimbursable, uses. The civil monetary penalties statute imposes penalties against any person or entity who, among other things, is determined to have presented or caused to be presented a claim to a federal health program that the person knows or should know is for an item or service that was not provided as claimed or is false or fraudulent.

HIPAA created additional federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud or to obtain, by means of false or fraudulent pretenses, representations or promises, any money or property owned by, or under the control or custody of, any healthcare benefit program, including private third-party payers and knowingly and willfully falsifying, concealing or covering up by trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services.

In addition, various states have enacted false claim laws analogous to the federal False Claims Act, although many of these state laws apply where a claim is submitted to any third-party payer and not merely a governmental payer program. If our operations are found to be in violation of any of the federal and state healthcare laws described above or any other governmental regulations that apply to us, we may be subject to significant penalties, including without limitation, civil, criminal and/or administrative penalties, damages, fines, disgorgement, exclusion from participation in government programs, such as Medicare and Medicaid, injunctions, private “qui tam” actions brought by individual whistleblowers in the name of the government, or refusal to allow us to enter into government contracts, contractual damages, reputational harm, administrative burdens, diminished profits and future earnings, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations. The costs of defending such claims, as well as any sanctions imposed, could significantly affect our financial performance.

Foreign Corrupt Practices Act

The Foreign Corrupt Practices Act, or FCPA, prohibits any United States individual or business from paying, offering, or authorizing payment or offering of anything of value, directly or indirectly, to any foreign official, political party or candidate for the purpose of influencing any act or decision of the foreign entity in order to assist the individual or business in obtaining or retaining business. The FCPA also obligates companies whose securities are listed in the United States to comply with accounting provisions requiring us to maintain books and records that accurately and fairly reflect all transactions of the corporation, including international subsidiaries, if any, and to devise and maintain an adequate system of internal accounting controls for international operations.

In Europe, various countries have adopted anti-bribery laws providing for severe consequences, in the form of criminal penalties and/or significant fines, for individuals and/or companies committing a bribery offence. Violations of these anti-bribery laws, or allegations of such violations, could have a negative impact on our business, results of operations and reputation. For instance, in the United Kingdom, under the Bribery Act 2010, which went into effect in July 2011, a bribery occurs when a person offers, gives or promises to give a financial or other advantage to induce or reward another individual to improperly perform certain functions or activities, including any function of a public nature. Bribery of foreign public officials also falls within the scope of the Bribery Act 2010. Under the new regime, an individual found in violation of the Bribery Act 2010 faces imprisonment of up to 10 years. In addition, the individual can be subject to an unlimited fine, as can commercial organizations for failure to prevent bribery.

Federal and State Physician Self-Referral Prohibitions

Under a federal law directed at “self-referral,” commonly known as the “Stark Law,” there are prohibitions, with certain exceptions, on referrals for certain designated health services, including laboratory services, that are covered by the Medicare and Medicaid programs by physicians who personally, or through a family member, have an investment or ownership interest in, or a compensation arrangement with, an entity performing the tests. The prohibition also extends to payment for any testing referred in violation of the Stark Law. Sanctions for violating the Stark Law include denial of payment, civil monetary penalties of up to \$25,820 per submitted claim, subject to periodic adjustments for inflation, and exclusion from the federal health care programs. Failure to refund amounts received as a result of a prohibited referral on a timely basis may constitute a false or fraudulent claim and may result in civil penalties and additional penalties under the False Claims Act (FCA). The statute also provides for a penalty of up to \$172,137 for a circumvention scheme. The Stark Law is a strict liability statute, which means proof of specific intent to violate the law is not required. In addition, the government and some courts have taken the position that claims presented in violation of the various statutes, including the Stark Law, can be considered a violation of the federal FCA, as described further below, based on the contention that a provider impliedly certifies compliance with all applicable laws, regulations and other rules when submitting claims for reimbursement. A determination of liability under the Stark Law could have a material adverse effect on our business, financial condition and results of operations. Bills submitted in violation of the Stark Law may not be paid by Medicare or Medicaid, and any person collecting any amounts with respect to any such prohibited bill is obligated to refund such amounts. Many states have comparable laws that are not limited to Medicare and Medicaid referrals.

Physician Payment Sunshine Act

The Physician Payment Sunshine Act, or the Sunshine Act, which was enacted as part of the Affordable Care Act, requires applicable manufacturers and certain distributors of prescription drugs, devices, biologics or other medical supplies available for coverage by Medicare, Medicaid or the Children's Health Insurance Program to report annually to the Secretary of HHS: (i) payments or other transfers of value made by that entity, or by a third-party as directed by that entity, to physicians and teaching hospitals or to third parties on behalf of physicians or teaching hospitals; effective January 1, 2022, reporting on payments and transfers of value made in the previous year to covered recipients will be expanded to include physician assistants, nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists and anesthesiologist assistants, and certified nurse-midwives; and (ii) physician ownership (including immediate family ownership) and investment interests in the entity. The statute requires the federal government to make reported information available to the public starting September 2014, which it has. Failure to submit the required information may result in civil monetary penalties of \$11,766 per failure up to an aggregate of \$176,495 per year. Knowingly failing to submit the required information may result in a civil money penalty of up to \$1,176,638. Such failures may result in liability under other federal laws or regulations. Additionally, there are criminal penalties if an entity intentionally makes false statements in such reports. Upon commercialization of covered products, we will be subject to the Sunshine Act and the information we disclose may lead to greater scrutiny, which may result in modifications to established practices and additional costs. Additionally, similar reporting requirements have also been enacted on the state level domestically, and an increasing number of countries worldwide either have adopted or are considering similar laws requiring transparency of interactions with healthcare professionals.

Corporate Practice of Medicine

Numerous states have enacted laws prohibiting business corporations, such as us, from practicing medicine and employing or engaging physicians to practice medicine, generally referred to as the prohibition against the corporate practice of medicine. Many states also have fee splitting laws that prohibit splitting or sharing medical professional fees with other persons or entities who did not perform the medical services unless an exception applies. These laws are designed to prevent interference in the medical decision-making process by anyone who is not a licensed physician. For example, California's Medical Board has indicated that determining what diagnostic tests are appropriate for a particular condition and taking responsibility for the ultimate overall care of the patient, including providing treatment options available to the patient, would constitute the unlicensed practice of medicine if performed by an unlicensed person. Violation of these corporate practice of medicine laws may result in civil or criminal fines, as well as sanctions imposed against us and/or the physician through licensure proceedings. Typically, such laws are only applicable to entities that conduct business or interact with patients located in that state. Additionally, claims that violate the corporate practice of medicine or other FDA or healthcare laws may increase our liability under the federal False Claims Act and comparable state false claims laws.

Healthcare Reform

The United States and some foreign jurisdictions are considering or have enacted several legislative and regulatory proposals designed to change the healthcare system in ways that could affect our business. In the United States, there is significant interest in promoting changes in the health care system with the stated goal of containing healthcare costs, improving quality or expanding access. For example, the ACA contains certain measures that may be significant for our business. The ACA includes, among other things, provisions regarding initiatives to revise Medicare payment methodologies; the coordination and promotion of research on comparative clinical effectiveness of different technologies and procedures; and initiatives to promote quality indicators in payment methodologies. The ACA also includes an annual excise tax on device manufacturers of 2.3% of the price for which manufacturers sell their devices. The excise tax was on a 4-year moratorium for calendar years 2016 through 2019. The Further Consolidated Appropriations Act, 2020 H.R. 1865 (Pub.L.116-94), signed into law on December 20, 2019, repealed the medical device excise tax previously imposed by Section 4191 of the U.S. Internal Revenue Code of 1986, as amended, (the "Code"), for sales of medical devices after December 31, 2019.

There have been other health reform measures taken since the enactment of the ACA. For example, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least \$1.2 trillion for fiscal year 2013 through fiscal year 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction (known as sequestration) to several government programs. This includes aggregate reductions to Medicare payments to providers of 2% per fiscal year, beginning April 1, 2013, which will remain in effect through 2030, with the exception of a temporary suspension implemented under various COVID-19 relief legislation from May 1, 2020 through March 31, 2021, unless additional Congressional action is taken. Furthermore, on January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, increased the statute of limitations for the government to recover overpayments to providers from three years to five years.

In the United States, there have been and continue to be a number of legislative initiatives to contain healthcare costs. The healthcare industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives. We face uncertainties that might result from modification or repeal of any of the provisions of the ACA, including as a result of executive orders and legislative actions. The impact of those legislative and regulatory changes on us and potential effect on the participants in the health care system as a whole is currently unknown. But, any changes to the ACA are likely to have an impact on our results of operations and may have a material adverse effect on our results of operations. We cannot predict what other healthcare programs and regulations will ultimately be implemented at the federal or state level or the effect of any future legislation or regulation in the United States may have on our business.

Changes in healthcare policy could increase our costs and subject us to additional regulatory requirements that may interrupt commercialization of our current and future solutions. Changes in healthcare policy could increase our costs, decrease our revenues and impact sales of and reimbursement for our current and future solutions. The Affordable Care Act substantially changes the way healthcare is financed by both governmental and private insurers, and significantly impact our industry. The Act contains a number of provisions that impact our business and operations, some of which in ways we cannot currently predict, including those governing enrollments in federal healthcare programs and reimbursement changes.

Other Regulatory Requirements

We are subject to federal, state and local laws, rules, regulations and policies governing the use, generation, manufacture, storage, emission, effluent discharge, handling and disposal of certain hazardous and potentially hazardous substances used in connection with our operations. The laboratory performing the Omics services is subject to federal, state and local regulations relating to the handling and disposal of regulated medical waste, hazardous waste and biohazardous waste, including chemical, biological agents and compounds, blood and bone marrow samples, and other human tissue. Typically, the laboratory uses outside vendors who are contractually obligated to comply with applicable laws and regulations to dispose of such waste. These vendors are licensed or otherwise qualified to handle and dispose of such waste.

The U.S. Occupational Safety and Health Administration has established extensive requirements relating to workplace safety for healthcare employers, including requirements to develop and implement programs to protect workers from exposure to blood-borne pathogens by preventing or minimizing any exposure through needle stick or similar penetrating injuries.

Backlog

We have no material backlog of orders.

Geographic and Segment Information

During 2020, substantially all of our long-lived assets were located within the United States, Canada, and the United Kingdom.

Revenue from international markets were approximately 1% and 2% of our consolidated revenue for 2020 and 2019, respectively.

We operate in one segment. The Company has one business activity and does not segregate its business for internal reporting. Accordingly, management has determined that the Company operates in one reportable segment.

Seasonality

Our revenues are not seasonal in nature.

Corporate Information

We were founded in 2010 as a Delaware limited liability company under the name "About Advanced Health, LLC." In 2011, our affiliates NantWorks, LLC, or NantWorks, and California Capital Equity, LLC, or Cal Cap, purchased certain assets from Abraxis Bioscience, LLC, which were subsequently contributed to us. We subsequently changed our name to "All About Advanced Health, LLC," and then to "Nant Health, LLC." On June 1, 2016, in connection with our initial public offering, we converted from a limited liability company into a Delaware corporation and changed our name from Nant Health, LLC to NantHealth, Inc., which we refer to as the "LLC Conversion." In conjunction with the LLC Conversion, (a) all of our outstanding units were automatically converted into shares of our common stock, based on the relative rights of our pre-IPO equity holders as set forth in the Nant Health, LLC limited liability company agreement, or the LLC Agreement, and (b) we adopted and filed a certificate of incorporation with the Secretary of State of the State of Delaware and adopted bylaws. Our principal executive offices are located at 9920 Jefferson Blvd, Culver City, CA 90232 and our telephone number is (310) 883-1300. Our corporate website address is www.nanthealth.com. We make available on our website, free of charge, our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and any amendments to those reports, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission, or SEC. Our SEC reports can be accessed through the investor relations page of our website located at <http://ir.nanthealth.com/>.

The contents of our website are not a part of, and are not incorporated by reference into, this Annual Report on Form 10-K or any other report or document we file with the SEC, and any references to our website are intended to be inactive textual references only.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as all other information included in this Annual Report on Form 10-K, including our financial statements and the related notes thereto and Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations", any of which may be relevant to decisions regarding an investment in or ownership of our common stock. Our future operating results may vary substantially from anticipated results due to a number of risks and uncertainties, many of which are beyond our control. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties that we are unaware of, or that we currently believe are not material, may also become important factors that affect us. The following discussion highlights some of these risks and uncertainties and the possible impact of these risks on future results of operations. If any of the following risks actually occurs, our business, financial condition, operating results, prospects and ability to accomplish our strategic objectives could be materially harmed. As a result, the trading price of our common stock could decline and you could lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations and the market price of our common stock.

Risk Factor Summary

Risks related to our business approach:

- We are an early, commercial-stage company attempting to integrate complex platforms and systems to address a wide range of healthcare issues, and we may not be successful in doing so.
- The success of NantHealth solutions is dependent upon the robustness of the information we and others input into our platforms and systems to achieve maximum network effects, and if we are unable to amass and input the requisite data to achieve these effects, our business will be adversely affected.
- We may be unable to appropriately allocate our financial and human resources across our broad array of product and service offerings.

Risks related to our financial condition and capital requirements:

- We have a limited operating history, which may make it difficult to evaluate our current business and predict our future performance.
- We have a history of significant losses, which we expect to continue, and we may never achieve or sustain profitability in the future.
- We may need to raise additional capital to fund our existing operations, develop our solutions, commercialize new products and expand our operations.

- If we are unable to maintain effective internal controls over financial reporting, our investors may lose confidence in us and the market price of our common stock may be adversely affected. If our internal controls over financial reporting are not effective, we may not be able to accurately report our financial results or prevent fraud.
- We are involved in pending securities litigation and an adverse resolution of such litigation may adversely affect our business, financial condition, results of operations and cash flows.

Risks related to our sequencing and molecular analysis solutions and clinical studies:

- We may not be able to generate sufficient revenue from our sequencing and molecular analysis solutions, including GPS Cancer, or our relationships with sequencing and molecular analysis customers, to achieve and maintain profitability.
- Sequencing and molecular analysis may have limited utility unless we or third parties are able to successfully establish links between genomic sequencing and expression analysis and disease and treatment pathways.
- Our success will depend on our ability to use rapidly changing genetic data to interpret molecular analysis results accurately and consistently, and our failure to do so would have an adverse effect on our operating results and business.
- Our sequencing and molecular analysis solutions may never achieve significant commercial market acceptance.
- If we cannot compete successfully with our competitors for our sequencing and molecular analysis solutions, we may be unable to increase or sustain our revenue or achieve and sustain profitability.
- The molecular diagnostics industry is subject to rapidly changing technology, which could make sequencing and molecular analysis solutions and other products we may develop or license in the future obsolete.
- If we are not able to establish relationships with, or lose the support of, key thought leaders or payers' key decision makers, it may be difficult to establish products and solutions as a standard of care for patients with cancer, which may limit our revenue growth and ability to achieve profitability.
- Ethical, legal and social concerns related to the use of genomic information could reduce demand for our sequencing and molecular analysis solutions.
- Clinical studies (including clinical trials) involve a lengthy and expensive process with an uncertain outcome, results of earlier studies and clinical trials may not be predictive of future clinical study results and our clinical studies may fail to adequately demonstrate substantial evidence of safety and efficacy of our product candidates.

Risks related to our system infrastructure and software solutions business:

- The market for our systems infrastructure and software solutions is new and unproven and may not grow.
- The data and information that we provide to our clients, and their constituents, could be inaccurate or incomplete, which could harm both patients and our business, financial condition and results of operations.
- Our use of open source technology could impose limitations on our ability to commercialize our offerings.
- If we are not able to enhance our systems infrastructure or software solutions to achieve market acceptance and keep pace with technological developments, our business will be harmed.
- Our data suppliers might restrict our use of or refuse to license data, which could lead to our inability to provide certain products or services.
- If the validity of an informed consent from a patient enrolled in a clinical trial with one of our clients was challenged, we could be forced to stop using some of our resources, which would hinder the development efforts for our sequencing and molecular analysis solutions.
- Failure by our clients to obtain proper permissions and waivers may result in claims against us or may limit or prevent our use of data which could harm our business.
- Our sales cycle can be lengthy and unpredictable, which may cause our revenue and operating results to fluctuate significantly.
- We bill our clients and recognize revenue over the term of the contract for certain of our products. As a result, near term declines in new or renewed agreements for these products may not be reflected immediately in our operating results and may be difficult to discern.
- A large portion of our revenue is derived from a small group of our clients, and the loss of such clients could adversely affect our business.
- If our existing clients do not continue or renew their agreements with us, renew at lower fee levels or decline to purchase additional applications and services from us, our business and operating results will suffer.
- If any new applications and services we may develop or acquire are not adopted by our customers, or if we fail to continue to innovate and develop or acquire new applications and services that are adopted by customers, then our revenue and operating results will be adversely affected.
- Security breaches, loss of data and other disruptions could compromise sensitive information related to our business and/or protected health information or prevent us from accessing critical information and expose us to liability, which could adversely affect our business and our reputation.

- We rely on Internet infrastructure, bandwidth providers, data center providers, other third parties and our own systems for providing services to our users, and any failure or interruption in the services provided by these third parties or our own systems could expose us to litigation and negatively impact our relationships with clients, adversely affecting our brand and our business.
- If we cannot implement NantHealth solutions and component systems infrastructure and platforms for customers in a timely manner, we may lose customers and our reputation may be harmed.
- We face intense competition in our markets, and we may be unable to compete effectively for new clients.
- The healthcare technology industry in which we operate is subject to rapidly changing technologies and trends, each of which could contribute to making our products obsolete.
- Healthcare industry consolidation could impose pressure on our prices, reduce our potential client base and reduce demand for one or more of our offerings.
- Our offerings may experience quality problems from time to time that can result in decreased sales, decreased operating margins and harm to our reputation.

Risks related to our software and medical device solutions:

- Our solutions may experience design or manufacturing defects from time to time that can result in reduced network effects to NantHealth solutions and component systems infrastructure and platforms which could materially and adversely affect our business.
- Our solutions could give rise to product liability claims and product recall events that could materially and adversely affect our financial condition and results of operations.
- The sale of test services and medical device products in the United States is subject to government regulations and we may not be able to obtain certain necessary clearances or approvals.
- Even if we obtain clearance or approval to sell medical device products or test services that utilize or are comprised of a medical device, we are subject to ongoing requirements and inspections that could lead to the restriction, suspension or revocation of our clearance or approval.

Risks related to our OpenNMS Open Source Business:

- Our OpenNMS business incorporates third-party open source software, which could negatively affect our ability to sell our OpenNMS platform and subject us to possible litigation.
- Because of the characteristics of open source software, there may be fewer technology barriers to entry in the open source market by new competitors and it may be relatively easy for new and existing competitors with greater resources than we have to compete with our OpenNMS open source business.
- We do not control and may be unable to predict the future course of open source technology development, including the ongoing development of open source components used in our OpenNMS platform, which could reduce the market appeal of our OpenNMS platform and damage our reputation.
- If open source software programmers, many of whom we do not employ, or our own internal programmers do not continue to develop and enhance open source technologies, we may be unable to develop new technologies, adequately enhance our existing technologies or meet customer requirements for innovation, quality and price.
- Our use of open source software could prevent us from offering products that include open source software or require us to obtain licenses on unfavorable terms.
- The acquisition of OpenNMS may not be successful and could disrupt our business and harm our financial condition.

Risks related to our relationships with other companies:

- Our ability to achieve profitability for our molecular sequencing and analysis solutions is dependent upon the success of NantOmics.
- If we are unable to renew our agreement with NantOmics or locate a suitable replacement upon expiration of such agreement at comparable prices, our business could be materially and adversely affected.
- We rely on third-party computer hardware and software that may be difficult to replace or which could cause errors or failures of our service which could damage our reputation, harm our ability to attract and maintain clients and decrease our revenue.
- We are heavily dependent on our senior management, particularly Dr. Patrick Soon-Shiong, and a loss of a member of our senior management team in the future could harm our business.
- If we and NantOmics are unable to support demand for our sequencing and molecular analysis solutions, including GPS Cancer, including ensuring that we have adequate capacity to meet increased demand, or we or NantOmics are unable to successfully manage the evolution of its molecular information platform, our business could suffer.

Risks related to our business generally:

- We have in the past and may in the future acquire other companies or technologies, which could divert our management's attention, result in dilution to our stockholders and otherwise disrupt our operations and adversely affect our operating results.
- If our new components and enhancements to our molecular platform do not achieve sufficient market acceptance, our financial results and competitive position will suffer.
- Business disruptions could seriously harm our future revenue and financial condition and increase our costs and expenses.
- If we fail to develop widespread brand awareness, our business may suffer.
- Our marketing efforts depend significantly on our ability to receive positive references from our existing customers.
- If we become subject to product liability or other litigation, we may incur substantial liabilities and may be required to limit commercialization of our current and any future products.
- We are subject to changes in and interpretations of financial accounting matters that govern the measurement of our performance, one or more of which could adversely affect our business.
- Failure to manage our future growth effectively could increase our expenses, decrease our revenue and prevent us from implementing our business strategy.
- Our estimates of market opportunity and forecasts of market growth may prove to be inaccurate, and even if the market in which we compete achieves the forecasted growth, our business could fail to grow at similar rates, if at all.
- The industry-and market-related estimates we rely upon are based on various assumptions and may prove to be inaccurate.
- We are exposed to risks related to our international operations and failure to manage these risks may adversely affect our operating results and financial condition.
- The United Kingdom's vote to leave the European Union will have uncertain effects and could adversely affect us.

Risks related to intellectual property:

- We may be unable to adequately protect, and we may incur significant costs in enforcing, our intellectual property and other proprietary rights.
- Obtaining and maintaining our patent protection depends on compliance with various procedural, documentary, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.
- Litigation or other proceedings or third-party claims of intellectual property infringement could require us to spend significant time and money and could prevent us from selling our products and services.
- We may become involved in lawsuits to protect or enforce our patents or other intellectual property, or the patents of our licensors, which could be expensive, time consuming and ultimately unsuccessful.
- We may not be able to protect our intellectual property rights throughout the world.
- Developments in U.S. patent law could have a negative impact on our business.
- If we fail to comply with our obligation in any of the agreements under which we license intellectual property rights from third parties or otherwise experience disruptions to our business relationships with our licensors, we could lose license rights that are important to our business.
- Confidentiality agreements with employees and others may not adequately prevent disclosure of our trade secrets and other proprietary information and may not adequately protect our intellectual property, which could limit our ability to compete.
- We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.
- We rely in part on trademarks to distinguish our products and services from those of other entities. Trademarks may be opposed or cancelled, and we may be involved in lawsuits or other proceedings to protect or enforce our trademarks.

Risks related to reimbursement and government regulation:

- If we fail to comply with applicable health information privacy and security laws and other state and federal privacy and security laws, we may be subject to significant liabilities, reputational harm and other negative consequences, including decreasing the willingness of current and potential customers to work with us.
- We may be, or may become, subject to data protection laws and regulations, and our failure to comply with such laws and regulations could lead to government enforcement actions and significant penalties against us, and adversely impact our operating results.
- If we, including our employees, suppliers, distributors, independent contractors, and agents acting on our behalf, fail to comply with federal and state healthcare laws and regulations, including those governing submissions of false or fraudulent claims to government healthcare programs and financial relationships with healthcare providers, we may be subject to significant civil and criminal penalties and/or loss of eligibility to participate in government healthcare programs.

- If commercial third-party payers or government payers fail to provide coverage or adequate reimbursement, or if there is a decrease in the amount of reimbursement for our sequencing and molecular analysis solutions, including GPS Cancer, or future products we develop, if any, our revenue and prospects for profitability would be harmed.
- If we fail to comply with the way states and the FDA regulates tests that are developed, manufactured, validated and performed by laboratories like NantOmics, such failure could expose us to litigation or enforcement action by regulators, or result in delay or additional expense in offering our tests and tests that we may develop in the future.
- Healthcare policy changes, including legislation reforming the U.S. healthcare system, may have a material adverse effect on our financial condition, results of operations and cash flows.
- We are subject to U.S. and foreign anti-corruption and anti-money laundering laws with respect to our operations and non-compliance with such laws can subject us to criminal and/or civil liability and harm our business.
- We are subject to governmental export and import controls that could impair our ability to compete in international markets due to licensing requirements and subject us to liability if we are not in compliance with applicable laws.
- We may be subject to fines, penalties or legal liability, if it is determined that we are practicing medicine without a license through our Eviti or molecular analysis solutions.
- Errors, misconduct, or illegal activity on the part of our clients may result in claims against us.
- Our services present the potential for embezzlement, identity theft or other similar illegal behavior by our employees or subcontractors with respect to third parties.

Risks related to our convertible notes:

- Servicing our debt requires a significant amount of cash, and we may not have sufficient cash flow from our business to pay our substantial debt.
- We may pay any interest make-whole payment on our notes by delivering shares of our common stock, which could result in significant dilution to our stockholders.
- The accounting method for convertible debt securities that may be settled in cash, such as the notes, could have a material effect on our reported financial results.

Risks related to our common stock:

- Our Chairman and Chief Executive Officer, and entities affiliated with him, collectively own a significant majority of our common stock and will exercise significant influence over matters requiring stockholder approval, regardless of the wishes of other stockholders.
- Dr. Patrick Soon-Shiong, our Chairman and Chief Executive Officer and our principal stockholder, has significant interests in other companies which may conflict with our interests.
- Our certificate of incorporation contains a waiver of the corporate opportunities doctrine for NantWorks and its affiliates, which includes our Chairman and Chief Executive Officer, and therefore covered persons have no obligations to make opportunities available to us.
- We can provide no assurances that we will be able to maintain an active, liquid and orderly trading market for our common stock or what the market price of our common stock will be and as a result it may be difficult for you to sell your common stock.
- The trading price of our common stock has been and may continue to be volatile. This volatility may affect the price at which you could sell our common stock, the notes and any common stock you receive upon conversion of your notes.
- Our common stock may be delisted from The Nasdaq Global Select Market if we fail to comply with Nasdaq's continued listing requirements.
- We may pay any interest make-whole payment by delivering shares of our common stock, which could result in significant dilution to our stockholders and cause our stock price to fall.
- We have incurred and will continue to incur costs as a result of operating as a public company and our management has been and will be required to devote substantial time to public company compliance initiatives.
- New legislation that would change U.S. or foreign taxation of international business activities or other tax-reform policies, including the imposition of tax based on gross income, could seriously harm our business.
- Our ability to use our net operating loss carryforwards to offset future taxable income may be subject to certain limitations.
- We do not anticipate paying any cash dividends on our common stock in the foreseeable future.
- We are an "emerging growth company," and a "smaller reporting company" and the reduced disclosure requirements applicable to emerging growth companies and smaller reporting companies could make our common stock less attractive to investors.
- Because we are relying on the exemptions from corporate governance requirements as a result of being a "controlled company" within the meaning of the Nasdaq listing standards, you do not have the same protections afforded to stockholders of companies that are subject to such requirements.

- If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our share price and trading volume could decline.
- We are not subject to the provisions of Section 203 of the Delaware General Corporation Law, which could negatively affect your investment.
- Some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management.
- Claims for indemnification by our directors and officers may reduce our available funds to satisfy successful third-party claims against us and may reduce the amount of money available to us.
- Our amended and restated certificate of incorporation designates the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or other employees.

Risks related to our business approach

We are an early, commercial-stage company attempting to integrate complex platforms and systems to address a wide range of healthcare issues, and we may not be successful in doing so.

We are an early, commercial-stage company with a business model based upon a novel approach to healthcare. NantHealth solutions are designed to address many of the key challenges healthcare constituents face by enabling them to move, interpret, and visualize complex and highly sensitive information (including sequencing and molecular analysis data), combine diagnostic inputs with phenotypic and cost data, analyze datasets and clinical research, securely deliver data to providers in a clinical setting to aid selection of the appropriate treatments, and demonstrate improved patient outcomes and costs. Integration across our systems infrastructure and platforms may take longer than we expect or may never occur at all.

We have engaged and may in the future engage in the acquisition or disposition of other companies, technologies, and businesses which could divert our management's attention, result in additional dilution to our stockholders and otherwise disrupt our operations and harm our operating results.

Due to the above factors, it may take longer than we expect, or we may never be able, to fully integrate our system as planned. If our integration efforts are not successful, we may not be able to attract new clients and to expand our offerings to existing clients.

The success of NantHealth solutions is dependent upon the robustness of the information we and others input into our platforms and systems to achieve maximum network effects, and if we are unable to amass and input the requisite data to achieve these effects, our business will be adversely affected.

NantHealth solutions become more valuable as more accurate and clinically relevant information is integrated into them, and our ultimate outputs and recommendations to a patient, provider or payer are therefore highly dependent on the information that is input into our platforms and systems. As a result, we need to consistently and continuously have access to and integrate the most medically relevant and cutting edge clinical data and research studies with patient-specific data (such as DNA and RNA analysis and biometric data). Further, to have access to certain other data points, we rely in part on third parties to develop applications to generate more data to be integrated into NantHealth solutions. These third parties may never develop applications compatible with our software solutions or may develop them at a slower rate than our ability to address shifts in healthcare. In addition, if such third-party solutions are not produced to specification, are produced in accordance with modified specifications, or are defective, they may not be compatible with our systems. In such case, the reliability and performance of our products may be compromised. To the extent we are unable to amass enough data, keep an inflow of current and continuous data or integrate and access the data we currently have to continue to populate NantHealth solutions, the network effects we expect will not be fully realized and our business may be adversely affected.

We may be unable to appropriately allocate our financial and human resources across our broad array of product and service offerings.

We have a broad array of product and service offerings. Our management team is responsible for allocating resources across these products and services and may forego or delay pursuit of opportunities with certain products or services that later prove to have greater commercial potential. In August 2017, we announced a comprehensive restructuring plan that included a wide range of organizational efficiency initiatives and other cost reduction opportunities. In addition, in February 2018, we acquired NantHealth Labs and sold a commercial liquid biopsy test product (marketed as Liquid GPS). In the second quarter of 2019, we ceased commercial sales of the Liquid GPS product. Instead, we are performing a study to measure the clinical utility of the AR-V7 analyte for informing treatment in patients with castration-resistant prostate cancer, while also pursuing other strategically aligned clinical studies that support our liquid biopsy platform. In July 2020, we acquired The OpenNMS Group, Inc., expanding our collective offerings to include networking monitoring solutions. These and other resource allocation decisions may cause us to fail to capitalize on attractive products or services or market opportunities. Our spending on current and future research and development programs and future products or services may not yield commercially viable products or services or may fail to optimize the anticipated network effects of NantHealth solutions. If our management team is unable to appropriately prioritize the allocation of our resources among our broad range of products and services in an efficient manner, our business may be adversely affected.

Risks related to our financial condition and capital requirements

We have a limited operating history, which may make it difficult to evaluate our current business and predict our future performance.

We were organized as a limited liability company in Delaware and began operations in 2010. In June 2016, we converted to a Delaware corporation. Additionally, our business has operated as part of the larger NantWorks, LLC, or NantWorks, group of affiliated companies. Our limited independent operating history, particularly in light of the increasingly complex and rapidly evolving healthcare and technology markets in which we operate, may make it difficult to evaluate our current business and predict our future performance. In addition, we have acquired numerous companies or businesses over the past three years, including certain assets of NaviNet, NantHealth Labs, and most recently The OpenNMS Group, Inc. ("OpenNMS"). In addition, in August 2017, we sold our provider/patient engagement solutions business to Allscripts and in February 2020, we sold assets relating to our connected care business to Masimo. We have had limited experience operating these businesses as a whole and as such, it may be difficult to evaluate our current business and predict our future operating performance. In light of the foregoing, any assessment of our profitability or prediction about our future success or viability is subject to significant uncertainty. We have encountered and will continue to encounter risks and difficulties frequently experienced by early, commercial-stage companies in rapidly evolving industries. If we do not address these challenges successfully, our business results will suffer.

We have a history of significant losses, which we expect to continue, and we may never achieve or sustain profitability in the future.

We have incurred significant net losses in each fiscal year since inception and expect to continue to incur net losses for the foreseeable future. We experienced net losses of \$56.4 million and \$62.8 million during the years ended December 31, 2020 and 2019, respectively. As of December 31, 2020, we had an accumulated deficit of \$1.0 billion. The losses and accumulated deficit were primarily due to the substantial investments we made to grow our business and enhance our systems infrastructure and platforms. We have grown our business through research and development and the acquisition of assets, businesses and customers. We anticipate that our operating expenses will increase substantially in the foreseeable future as we seek to continue to grow our business, including through strategic acquisitions, and build and further penetrate our client base and develop our product and service offerings, including (i) GPS Cancer, Omics Core and our clinical studies for our liquid biopsy platform; (ii) expansion of the features and capabilities of our NaviNet and Eviti product lines and (iii) expanding the OpenNMS platform through the creation of cloud solutions and the addition of hardware devices for edge monitoring. These efforts may prove more expensive than we currently anticipate, and we may not succeed in increasing our revenue sufficiently to offset these higher expenses.

Our prior losses, combined with our expected future losses, have had and will continue to have an adverse effect on our stockholders' equity (deficit) and working capital. We expect to continue to incur operating losses for the foreseeable future and may never become profitable on a quarterly or annual basis, or if we do, we may not be able to sustain profitability in subsequent periods. Our failure to achieve and sustain profitability in the future would negatively affect our business, financial condition, results of operations and cash flows, and could cause the market price of our common stock to decline.

We may need to raise additional capital to fund our existing operations, develop our solutions, commercialize new products and expand our operations.

Based on our current business plan, we believe our current cash, cash equivalents, marketable securities, and our ability to borrow from affiliated entities, will be sufficient to meet our anticipated cash requirements over at least the next 12 months. If our available cash balances and anticipated cash flow from operations are insufficient to satisfy our liquidity requirements, we may seek to sell common or preferred equity or convertible debt securities, enter into a credit facility or another form of third-party funding, or seek other debt financing.

We may consider raising additional capital in the future to expand our business, to pursue strategic investments, to take advantage of financing opportunities, or for other reasons, including to:

- increase our sales and marketing efforts to drive market adoption of NantHealth solutions (including GPS Cancer and NantHealth software solutions);
- address competitive developments;
- fund development and marketing efforts of any future platforms and solutions;
- expand adoption of GPS Cancer and Eviti platform solutions into critical illnesses outside of oncology;
- acquire, license or invest in complimentary businesses, technologies or service offerings; and
- finance capital expenditures and general and administrative expenses.

Our present and future funding requirements will depend on many factors, including:

- our success in driving adoption of our molecular analysis solutions, including GPS Cancer;
- our success in making our molecular analysis solutions reimbursable by payers;
- our ability to achieve revenue growth;
- the cost of expanding our products and service offerings, including our sales and marketing efforts;
- our ability to achieve interoperability across all of our acquired businesses, technologies and service offerings to deliver networking effects to our clients;
- the effect of competing technological and market developments;
- costs related to international expansion;
- costs associated with clinical studies; and
- the potential cost of and delays in product development as a result of any regulatory oversight applicable to our products.

The various ways we could raise additional capital carry potential risks. If we raise funds by issuing equity securities, dilution to our stockholders could result. Any equity securities issued also could provide for rights, preferences or privileges senior to those of holders of our common stock. If we raise funds by issuing debt securities, those debt securities would have rights, preferences and privileges senior to those of holders of our common stock. The terms of debt securities issued or borrowings pursuant to a credit agreement could impose significant restrictions on our operations.

If we are unable to maintain effective internal controls over financial reporting, our investors may lose confidence in us and the market price of our common stock may be adversely affected. If our internal controls over financial reporting are not effective, we may not be able to accurately report our financial results or prevent fraud.

Section 404 of the Sarbanes-Oxley Act of 2002, or Section 404, requires that we maintain internal control over financial reporting that meets applicable standards. We may err in the design or operation of our controls, and all internal control systems, no matter how well designed and operated, can provide only reasonable assurance that the objectives of the control system are met. Because there are inherent limitations in all control systems, there can be no assurance that all control issues have been or will be detected. If we are unable, or are perceived as unable, to produce reliable financial reports due to internal control deficiencies, investors could lose confidence in our reported financial information and operating results, which could result in a negative market reaction and a decrease in our stock price.

We are required, pursuant to Section 404, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting. We will need to disclose any material weaknesses identified by our management in our internal control over financial reporting. As an "emerging growth company," we are availing ourselves of the exemption from the requirement that our independent registered public accounting firm attest to the effectiveness of our internal control over financial reporting under Section 404. However, we may no longer avail ourselves of this exemption when we cease to be an "emerging growth company." When our independent registered public accounting firm is required to undertake an assessment of our internal control over financial reporting, the cost of our compliance with Section 404 will correspondingly increase. Our compliance with applicable provisions of Section 404 will require that we incur substantial accounting expense and expend significant management time on compliance-related issues as we implement additional corporate governance practices and comply with reporting requirements. Moreover, if we are not able to comply with the requirements of Section 404 applicable to us in a timely manner, or if we or our independent registered public accounting firm identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, the market price of our stock could decline and we could be subject to sanctions or investigations by the U.S. Securities and Exchange Commission, or SEC, or other regulatory authorities, which would require additional financial and management resources.

Moreover, if we identify a material weaknesses in our internal control over financial reporting, if we are unable to comply with the requirements of Section 404 in a timely manner, or if we are unable to assert that our internal control over financial reporting is effective, we may be late with the filing of our periodic reports, investors may lose confidence in the accuracy and completeness of our financial reports and the market price of our common stock could be negatively affected. As a result of such failures, we could also become subject to investigations by the stock exchange on which our securities are listed, the SEC, or other regulatory authorities, and become subject to litigation from investors and stockholders, which could harm our reputation, financial condition or divert financial and management resources from our core business and would have a material adverse effect on our business, financial condition and results of operations.

We are involved in pending securities litigation and an adverse resolution of such litigation may adversely affect our business, financial condition, results of operations and cash flows.

We have been named as a defendant in lawsuits arising out of our initial public offering and later public statements. In March 2017, a number of putative class action securities complaints were filed in the U.S. District Court for the Central District of California, naming as defendants the Company and certain of our executive officers and directors. Certain plaintiffs also named, as defendants, investment banks who were underwriters in our initial public offering but the claims against the underwriters were dropped. The complaints generally allege that defendants made material misstatements and omissions in violation of the federal securities laws. The complaints were consolidated with the lead case captioned *Deora v. NantHealth, Inc.*, 2:17-cv-01825 ("Deora"). In October 2019, the parties reached an agreement in principle to settle these federal class actions in their entirety for \$16.5 million, which was included in accrued and other current liabilities in the Consolidated Balance Sheet at December 31, 2019. The Court granted preliminary approval of the settlement on January 31, 2020. A hearing for final approval of the settlement was scheduled for June 15, 2020, but on June 5, 2020, the Court decided to take the final approval motion on submission, and on July 17, 2020, the Court directed Plaintiff's counsel to submit evidence substantiating all costs incurred. The \$16.5 million settlement was paid into a settlement fund prior to the payment deadline of March 2, 2020. The majority of the settlement amount was funded by our insurance carriers, and a portion was funded by us. On September 10, 2020, the Court entered an order granting final approval of the settlement, and the order and the settlement are now final. In May 2017, a putative class action complaint was filed in California Superior Court, Los Angeles County, asserting claims for violations of the Securities Act based on allegations similar to those in Deora. That case is captioned *Bucks County Employees Retirement Fund v. NantHealth, Inc.*, BC 662330. The parties agreed to stay the case. During a status conference for February 4, 2021, the Court scheduled a further status conference for April 7, 2021 and stated that if Plaintiff does not voluntarily dismiss the action, the Court will entertain a motion to dismiss in light of the finalization of the Deora settlement. For additional information regarding this and other lawsuits in which we are involved, see Part II, Item 1, Legal Proceedings.

Risks related to our sequencing and molecular analysis solutions and clinical studies

We may not be able to generate sufficient revenue from our sequencing and molecular analysis solutions, including GPS Cancer, or our relationships with sequencing and molecular analysis customers, to achieve and maintain profitability.

We believe our commercial success depends significantly upon our ability to successfully market and sell our sequencing and molecular analysis solutions to continue to expand our current relationships and develop new relationships with physicians, self-insured employers, payers and healthcare providers, and expand adoption of sequencing and molecular analysis for disease indications outside oncology. Net revenue from our sequencing and molecular analysis solutions represented 0.3% and 2.2% of our total net revenue for the years ended December 31, 2020 and 2019, respectively. The demand for sequencing and molecular analysis may decrease or may not continue to increase at historical rates for a number of reasons. Our clients may decide to decrease or discontinue their use of sequencing and molecular analysis due to changes in research and product development plans, financial constraints or utilization of internal molecular testing resources or molecular tests performed by others, which are circumstances outside of our control. In addition to reducing our revenue, this may reduce our exposure to early stage research that facilitates the incorporation of newly developed information about cancer and other diseases into our molecular analysis solutions. Further, we may be unsuccessful in expanding our clients' use of sequencing and molecular analysis outside of oncology.

In addition, our expansion into the liquid tumor profiling market may not be successful and may fail to generate the levels of revenue that we project. The future growth of our market and the success of liquid profiling offerings that may arise from clinical studies that we undertake depends on many factors beyond our control, including the success of our clinical studies, regulatory factors, recognition and acceptance by the scientific community, and the growth, prevalence, and costs of competing methods of tumor analysis. Additionally, our success depends on the ability of our sales organization to successfully sell such commercial offerings.

We are currently not profitable. Even if we succeed in increasing adoption of sequencing and molecular analysis by physicians, self-insured employers, payers and healthcare providers, and maintaining and creating relationships with our existing and new clients, we may not be able to generate sufficient revenue from sequencing and molecular analysis to achieve profitability.

Sequencing and molecular analysis may have limited utility unless we or third parties are able to successfully establish links between genomic sequencing and expression analysis and disease and treatment pathways.

Full genomic sequencing and expression analysis may have limited utility on a stand-alone basis. We believe the real value is derived by linking genomic sequencing and RNA analysis with disease pathways to help enable the discovery and development of personalized treatments. We do not currently, and do not expect in the future to, engage in research regarding disease pathways or engage in the development or commercialization of specific therapeutics or drugs. Instead, we will rely on third parties to do so. If, however, third-party time and funding is not devoted to determining disease pathways or to discovering, developing and marketing therapeutics or drugs specific to such pathways, sequencing and molecular analysis and our associated solution (including GPS Cancer and Omics Core) will be perceived to have limited utility and our business may be adversely affected.

Our success will depend on our ability to use rapidly changing genetic data to interpret molecular analysis results accurately and consistently, and our failure to do so would have an adverse effect on our operating results and business.

Our success depends on our ability to provide reliable, high-quality molecular profiling tests that incorporate rapidly-evolving information about the role of genes and gene variants in disease and clinically relevant outcomes associated with those variants. The accuracy and reproducibility we have demonstrated to date may not continue, particularly for clinical samples, as molecular analysis volume increases. Errors, including as a result of molecular analysis failing to detect genomic variants with high accuracy, or omissions, including as a result of failing to or incompletely or incorrectly identify the significance of gene variants, could have a significant adverse impact on our business. Hundreds of genes can be implicated in some disorders and overlapping networks of genes and symptoms can play a role in multiple conditions. We also rely on clinicians to interpret what we report and to incorporate specific information about an individual patient into the physician's treatment decision. As a result, a substantial amount of judgment is required in order to interpret testing results for an individual patient and to develop an appropriate patient report. Due to such errors in judgment, patient outcomes may not be improved even if our molecular analysis services perform to our expectations.

The efficiency of sequencing and molecular analysis, including GPS Cancer and Omics Core, and the results that we achieve depend on the design and operation of our test processes, which use a number of complex and sophisticated biochemical, informatics, optical, and mechanical processes, many of which are highly sensitive to external factors. An operational or technology failure in one of these complex processes or fluctuations in external variables may result in processing efficiencies that are lower than we anticipate or that vary between testing runs. In addition, we regularly evaluate and if necessary, refine our processes. These refinements may initially result in unanticipated issues that further reduce our test run yields or increase the variability of our test run yields. Low test run yields can cause variability in our operating results and damage our reputation. In addition, although we believe GPS Cancer is a comprehensive molecular profiling solution, no solution is fully comprehensive, and it will need to be continually improved in line with improvements in science and technology and potential developments by our competitors. If GPS Cancer proves to not be fully comprehensive, customer demand for GPS Cancer may be adversely affected.

GPS Cancer can determine whether specific genes are over- or under-expressed which can affect protein levels and, as a result, cancer phenotype and drug efficacy in a particular patient. Such gene expression can also capture the effect of post-translational modifications, which can have equally significant implications on how a cancer is expressed in a patient and in turn may impact treatment decisions. Our sequencing and molecular analysis solutions (including GPS Cancer) represent a novel and largely unproven approach to the characterization and monitoring of cancer and may not be accurate based on the evolving understanding of how DNA and RNA analysis relate to disease progression and drug efficacy and resistance. As a result, the marketing, sale and use of our sequencing and molecular analysis solutions could subject us to liability for errors in, misunderstandings of, or inappropriate reliance on, information we provide to physicians or geneticists, and lead to claims against us if someone were to allege that our solutions failed to perform as they were designed, if we failed to correctly interpret results, or if the ordering physician were to misinterpret our results or improperly rely on them when making a clinical decision. A product liability or professional liability claim could result in substantial financial and reputational damage and be costly and time-consuming for us to defend. Although we maintain liability insurance, including for errors and omissions, we cannot assure you that our insurance would fully protect us from the financial impact of defending against these types of claims or any judgments, fines or settlement costs arising out of any such claims. Any liability claim, including an errors and omissions liability claim, brought against us, with or without merit, could increase our insurance rates or prevent us from securing insurance coverage in the future. Additionally, any liability lawsuit could cause injury to our reputation or cause us to suspend sales of our sequencing and molecular analysis solutions. The occurrence of any of these events could have an adverse effect on our business, reputation and results of operations.

Our sequencing and molecular analysis solutions may never achieve significant commercial market acceptance.

Our sequencing and molecular analysis solutions may never gain significant acceptance in the marketplace and, therefore, may never generate substantial revenue or profits for us. Our ability to achieve commercial market acceptance for our sequencing and molecular analysis solutions will depend on several factors, including:

- our ability to convince key thought leaders, physicians and caregivers and other key oncology stakeholders of the clinical utility of our entire product offering and its potential advantages over existing sequencing tests, specifically, the advantages of our RNA sequencing, which maps oncology disease pathways versus a patient's own germline;
- the willingness of physicians, self-insured employers, payers and healthcare providers to utilize our sequencing and molecular analysis services; and
- the willingness of commercial third-party payers and government payers to reimburse for our molecular services, the scope and amount of which will affect patients' willingness or ability to pay for our molecular analysis services and likely heavily influence our customers' decisions to recommend our molecular analysis services.

Further, today's most advanced diagnostics tests analyze narrow gene panels that capture only a limited number of the most common gene alterations, as compared to GPS Cancer, which sequences the patient's whole genome/exome (comparing both a patient's normal and tumor tissue) and performs RNA sequencing, gene expression and statistical analysis. These narrow gene panels for specific treatments or disease areas are much less expensive than GPS Cancer. Although we believe that the advantages of sequencing the patient's whole genome/exome for the treatment of cancer, as well as running additional RNA tests, outweigh the costs, key thought leaders, physicians and other caregivers, other key oncology stakeholders and payers may not agree. Further, if advances in the understanding of disease states and pathways do not reveal a benefit to whole genome/exome and RNA sequencing in areas beyond cancer then the market potential for our sequencing and molecular analysis services will be limited. Failure to achieve widespread commercial market acceptance for our sequencing and molecular analysis solutions could materially harm our business, financial condition and results of operations.

If we cannot compete successfully with our competitors for our sequencing and molecular analysis solutions, we may be unable to increase or sustain our revenue or achieve and sustain profitability.

Personalized molecular analysis is a new area of science, and we face competition from companies that offer products, or have conducted research, to profile genes and gene expression in various cancers. Our principal competition for our sequencing and molecular analysis solutions comes from diagnostic companies that also offer whole genome/exome sequencing. We also compete with diagnostic companies offering molecular diagnostic tests that capture only a single marker or test panels that capture a limited number of the most well-known gene alterations, known as hotspot panel tests. In addition, academic research centers, diagnostic companies and next-generation sequencing, or NGS, platform developers are offering or developing NGS-based testing. NGS-based testing also has the capability to provide whole genome/exome sequencing to compete with our solutions.

Our competitors with respect to our tissue-based sequencing and molecular analysis solutions include companies such as Foundation Medicine, Inc., or Foundation Medicine, Caris Life Sciences, Inc., or Caris Life Sciences, Personal Genome Diagnostics, Inc., or Personal Genome Diagnostics, Guardant Health, Inc., and Paradigm Diagnostics, Inc. and Tempus Labs.

With the acquisition of NantHealth Labs, we expanded our testing capabilities to include liquid tumor profiling. Competitors with respect to liquid tumor profiling services that we may offer in the future (stemming from our clinical studies) may include Guardant Health, Inc., Foundation Medicine, Inc., Genomic Health, Inc. and Biocept, Inc.

Many hospitals and academic medical centers may also seek to perform the type of molecular testing we perform at their own facilities. As such, our competition may include entities such as the University of Michigan, Baylor Medical Genetics Laboratories, Washington University in St. Louis, Memorial Sloan Kettering Cancer Center and other academic hospitals and research centers. In addition to developing kits, some diagnostic companies also provide NGS platforms. Illumina, Inc., Thermo Fisher Scientific Corporation, Invitae Corporation, and other companies develop NGS platforms that are being sold directly to research centers, biopharmaceutical companies and clinical laboratories. While many of the applications for these platforms are focused on the research and development markets or testing for conditions outside of oncology, these companies have launched and will continue to commercialize products focused on the clinical oncology market. Although we believe GPS Cancer is a comprehensive molecular profiling solution, our competitors may develop more comprehensive or superior alternative offerings. We believe diagnostic platform providers will seek to place sequencing machines in laboratories to develop NGS-based laboratory-developed tests, or LDTs. In addition, we believe these companies will also develop their own diagnostic kits approved by the FDA, which can be sold to the clients who have purchased their platforms. Also, many private companies are developing information technology-based tools to support the integration of NGS-based testing into the clinical setting.

Additionally, some of our competitors' molecular analysis tests are being used in FDA clinical trials as companion diagnostics. Because companion diagnostics help identify whether a patient's disease expresses the molecular target, or biomarker, for the particular drug, they can help ensure the drug's efficacy and are sometimes required by the FDA to be used with certain drugs. Our molecular analysis solutions may not have the DNA and RNA analysis capability on par with a companion diagnostic to guide therapeutic treatments for certain customers. Further, the FDA requires a companion diagnostic test if a new drug works on a specific genetic or biological target that is present in some, but not all, patients with a certain cancer or disease. Even if it is shown to be on par with FDA-approved companion diagnostics, physicians and payers may still not choose to use our molecular analysis solutions. If physicians and payers utilize and pay for these FDA-approved companion diagnostic tests instead of our solutions, our business may be adversely affected.

Any of these competitors could have technological, financial and market access advantages that are not currently available to us.

The molecular diagnostics industry is subject to rapidly changing technology, which could make sequencing and molecular analysis solutions and other products we may develop or license in the future obsolete.

Our industry is characterized by rapid technological changes, frequent new product introductions and enhancements and evolving industry standards, all of which could make our sequencing and molecular analysis solutions or other products we develop or license obsolete. Our future success will depend on our ability to keep pace with the evolving needs of our clients on a timely and cost-effective basis and to pursue new market opportunities that develop as a result of technological and scientific advances. In recent years, there have been numerous advances in technologies relating to the diagnosis and treatment of cancer. There have also been advances in methods used to analyze very large amounts of genomic information. We must continuously enhance our products and solutions, and we may also need to develop or license new technologies, to keep pace with evolving standards of care. If we do not update our products and solutions to reflect new scientific knowledge about cancer biology, information about new cancer therapies, or relevant clinical trials, our solutions could become obsolete and our molecular analysis revenue growth would be limited or eliminated, which would have a material adverse effect on our business, financial condition and results of operations.

If we are not able to establish relationships with, or lose the support of, key thought leaders or payers' key decision makers, it may be difficult to establish products and solutions as a standard of care for patients with cancer, which may limit our revenue growth and ability to achieve profitability.

We are establishing relationships with leading oncology thought leaders and payers' key decision makers. If we are unable to establish these relationships, or these key thought leaders or payers' key decision makers determine that the products or services that we develop or license are not clinically or operationally effective or that alternative technologies and services are more effective or cost-efficient, or if they elect to use and promote internally developed products, we would encounter significant difficulty driving adoption of our products and solutions and/or validating them as a standard of care, which would limit our revenue growth and our ability to achieve profitability.

Ethical, legal and social concerns related to the use of genomic information could reduce demand for our sequencing and molecular analysis solutions.

Genomic testing, like that conducted using GPS Cancer, has raised ethical, legal and social issues regarding privacy and the appropriate uses of the resulting information. Governmental authorities could, for social or other purposes, limit or regulate the use of genomic information or genomic testing, particularly for those diseases that have no known cure. These concerns may lead patients to refuse to use, or clinicians to be reluctant to order, whole genome/exome genomic tests even if permissible.

Ethical and social concerns may also influence U.S. and foreign patent offices and courts with regard to patent protection for technology relevant to our business. These and other ethical, legal and social concerns may limit market acceptance of our products or reduce the potential markets for products enabled by our sequencing and molecular analysis solutions, either of which could have an adverse effect on our business, financial condition or results of operations.

Clinical studies (including clinical trials) involve a lengthy and expensive process with an uncertain outcome, results of earlier studies and clinical trials may not be predictive of future clinical study results and our clinical studies may fail to adequately demonstrate substantial evidence of safety and efficacy of our product candidates.

Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. A failure of one or more of our clinical studies, including our clinical studies for our liquid biopsy platform, can occur at any time during the clinical study process. The results of preclinical studies and early clinical trials of our product candidates may not be predictive of the results of later-stage clinical trials. There is a high failure rate for product candidates proceeding through clinical trials, and product candidates in later stages of clinical trials may fail to show the required safety and efficacy despite having progressed through preclinical studies and initial clinical trials. A number of companies in the medical device industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or adverse safety profiles, notwithstanding promising results in earlier clinical trials, and we cannot be certain that we will not face similar setbacks. Even if our clinical studies are completed, the results may not be sufficient to support a commercial product offering or obtaining regulatory approval for our product candidates.

We may experience additional delays in our clinical studies. We do not know whether future clinical studies, if any, will begin on time, need to be redesigned, enroll an adequate number of patients on time or be completed on schedule, if at all. Clinical studies can be delayed, suspended or terminated by us, regulatory authorities, clinical trial investigators, and ethics committees for a variety of reasons, including failure to:

- generate sufficient preclinical or other data to support the initiation or continuation of clinical studies;
- obtain regulatory authorization, or feedback on clinical study design, to commence a clinical study;
- identify, recruit and train suitable clinical investigators;
- reach agreement on acceptable terms with prospective Contract Research Organizations, or CROs, and clinical study sites;
- obtain and maintain institutional review board, or IRB, approval at each clinical study site (where required);
- identify, recruit and enroll suitable patients to participate in a clinical study;
- have a sufficient number of patients complete a clinical study or return for post-treatment follow-up;
- ensure clinical investigators observe clinical study protocol or continue to participate in a clinical study;
- address any patient safety concerns that arise during the course of a clinical study;
- address any conflicts with new or existing laws or regulations;
- add a sufficient number of clinical study sites;
- timely manufacture sufficient quantities of product candidate for use in clinical trials; or
- raise sufficient capital to fund a clinical study.

Patient enrollment is a significant factor in the timing of clinical studies and is affected by many factors, including the size and nature of the patient population, the proximity of patients to clinical sites, the eligibility criteria for the clinical study, the design of the clinical study, competing clinical studies and clinicians' and patients' or caregivers' perceptions as to the potential advantages of the device candidate being studied in relation to other available therapies or tests, including any new tests or treatments that may be approved for the indications we are investigating.

We could also encounter delays if a clinical study is suspended or terminated by us, by the data safety monitoring board for such clinical study or by the FDA or any other regulatory authority, or if the IRBs of the institutions in which such clinical studies are being conducted suspend or terminate the participation of their clinical investigators and sites subject to their review. Such authorities may suspend or terminate a clinical study due to a number of factors, including failure to conduct the clinical study in accordance with regulatory requirements, including Good Clinical Practices, or GCPs, or our clinical protocols, inspection of the clinical study operations or clinical study site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a product candidate, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical study.

If we experience delays in the completion of, or termination of, any clinical study of our product candidates for any reason, the commercial prospects of our product candidates may be harmed, and our ability to generate product revenues from any of these product candidates will be delayed. In addition, any delays in completing our clinical studies will increase our costs, slow down our product candidate development and approval process and jeopardize our ability to commence product sales and generate revenues. Any of these occurrences may significantly harm our business, financial condition and prospects. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical studies may also ultimately lead to the denial of regulatory approval of our product candidates.

Risks related to our system infrastructure and software solutions business

The market for our systems infrastructure and software solutions is new and unproven and may not grow.

We believe our future success will depend in large part on establishing and growing a market for our systems infrastructure and that our systems are able to provide operational intelligence, particularly designed to collect and index machine data. Our systems infrastructure is designed to address interoperability challenges across the healthcare continuum. It integrates big data with real time resources and applies machine learning algorithms to inform and optimize treatment decisions. In order to grow our business, we intend to expand the functionality of our offering to increase its acceptance and use by the broader market. In particular our systems infrastructure is targeted at those in the healthcare continuum that are transitioning from fee-for-service to a value-based reimbursement model. While we believe this to be the current trend in healthcare, this trend may not continue in the future. Our systems infrastructure is less effective with a traditional fee-for-service model and if there is a reversion in the industry towards fee-for-service, or a shift to another model, we would need to update our offerings and we may not be able to do so effectively or at all. It is difficult to predict client adoption and renewal rates, client demand for our software, the size and growth rate of the market for our solutions, the entry of competitive products or the success of existing competitive products. Many of our potential clients may already be party to existing agreements for competing offerings that may have lengthy terms or onerous termination provisions, and they may have already made substantial investments into those platforms which would result in high switching costs. Any expansion in our market depends on several factors, including the cost, performance and perceived value associated with such operating system and software applications particularly considering the shifting market dynamics. Although we have experienced rapid adoption of our systems infrastructure and software solutions, the rate may slow or decline in the future, which would harm our business and operating results. In addition, while many large hospital systems and payers use our solutions, many of these entities use only certain of our offerings, and we may not be successful in driving broader adoption of our solutions among these existing users, which would limit our revenue growth.

If the market for our offerings does not achieve widespread adoption or there is a reduction in demand for our offerings in our market caused by a lack of customer acceptance, technological challenges, lack of accessible machine data, competing technologies and products, decreases in corporate spending, weakening economic conditions, or otherwise, it could result in reduced customer orders, early terminations, reduced renewal rates or decreased revenues, any of which would adversely affect our business operations and financial results. You should consider our business and prospects in light of the risks and difficulties we may encounter in this new and unproven market.

The data and information that we provide to our clients, and their constituents, could be inaccurate or incomplete, which could harm both patients and our business, financial condition and results of operations.

Some of our software solutions store and display data from a variety of third-party sources for use in treating patients and to search and compare options for healthcare services and treatments. As part of our Eviti platform solutions, we provide up-to-date information regarding cancer research, along with a list of potential treatments and relevant clinical trials seeking enrollment. Most of this data comes from health plans, our clients, published guidelines, peer-reviewed journals and other third parties. Because data in the healthcare industry is often fragmented in origin, inconsistent in format and often incomplete, the overall quality of certain types of data we receive can be poor. If these data are incorrect or incomplete or if we make mistakes in the capture or input of their data, or in our interpretation or analysis of such data, adverse consequences, including patient death and serious injury, may occur and give rise to product liability and other claims against us. In addition, a court or government agency may take the position that our storage and display of health information exposes us to personal injury liability or other liability for wrongful delivery or handling of healthcare services or erroneous health information. While we maintain insurance coverage, we cannot assure that this coverage will prove to be adequate or will continue to be available on acceptable terms, if at all. Even unsuccessful claims could result in substantial costs, reputational damage, and diversion of management resources. A claim brought against us that is uninsured or under-insured could harm our business, financial condition and results of operations.

Our use of open source technology could impose limitations on our ability to commercialize our offerings.

Our offerings incorporate open source software components that are licensed to us under various public domain licenses. Some open source software licenses require users who distribute open source software as part of their software to publicly disclose all or part of the source code to such software or make available any derivative works of the open source code on unfavorable terms or at no cost. There is little or no legal precedent governing the interpretation of many of the terms of these licenses and therefore the potential impact of such terms on our business is not fully known or predictable. There is a risk that such licenses could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to market our software products and services. While we monitor our use of open source software and try to ensure that none is used in a manner that would require us to disclose our source code or that would otherwise breach the terms of an open source agreement, such use could inadvertently occur and we may be required to release our proprietary source code, pay damages for breach of contract, re-engineer one or more of our offerings, discontinue sales of one or more of our offerings in the event re-engineering cannot be accomplished on a timely basis or take other remedial action that may divert resources away from our development efforts, any of which could cause us to breach obligations to our clients, harm our reputation, result in customer losses or claims, increase our costs or otherwise adversely affect our business and operating results.

If we are not able to enhance our systems infrastructure or software solutions to achieve market acceptance and keep pace with technological developments, our business will be harmed.

Our ability to attract new subscribers and licensees, and increase revenue from existing subscribers and licensees, depends in large part on our ability to enhance and improve our existing offerings and to introduce new products and services, including products and services designed for a mobile user environment. To grow our business, we must develop products and services that reflect the changing nature of business management software and expand our offering. The success of any enhancements to our offerings depends on several factors, including timely completion, adequate quality testing and sufficient demand. Any new product or service that we develop may not be introduced in a timely or cost-effective manner, may contain defects or may not achieve the market acceptance necessary to generate sufficient revenue. If we are unable to successfully develop new products or services, enhance our existing offerings to meet subscriber requirements or otherwise gain market acceptance, our business and operating results will be harmed.

In addition, because many of our offerings are available over the Internet, we need to continuously modify and enhance them to keep pace with changes in Internet-related hardware, software, communications and database technologies and standards. If we are unable to respond in a timely and cost-effective manner to these rapid technological developments and changes in standards, our offerings may become less marketable, less competitive or obsolete, and our operating results will be harmed. If new technologies emerge that are able to deliver competitive products and applications at lower prices, more efficiently, more conveniently or more securely, such technologies could adversely impact our ability to compete. Our offerings must also integrate with a variety of network, hardware, mobile, and software platforms and technologies, and we need to continuously modify and enhance them to adapt to changes and innovation in these technologies. Any failure of our offerings to operate effectively with future infrastructure platforms and technologies could reduce the demand for such offerings. If we are unable to respond to these changes in a cost-effective manner, our offerings may become less marketable, less competitive or obsolete, and our operating results may be adversely affected.

Our data suppliers might restrict our use of or refuse to license data, which could lead to our inability to provide certain products or services.

A portion of the data that we use is either purchased or licensed from third parties or is obtained from our customers for specific customer engagements. Although we typically enter into long-term contractual arrangements with many of these suppliers of data, at the time of entry into a new contract or renewal of an existing contract, suppliers may increase restrictions on our use of such data, increase the price they charge us for data or refuse altogether to license the data to us. In addition, during the term of any data supply contract, suppliers may fail to adhere to our data quality control standards or fail to deliver data. Further, although no single individual data supplier is material to our business, if a number of suppliers collectively representing a significant amount of data that we use for one or more of our services were to impose additional contractual restrictions on our use of or access to data, fail to adhere to our quality-control standards, repeatedly fail to deliver data or refuse to provide data, now or in the future, our ability to provide those services to our clients could be materially adversely impacted, which may harm our operating results and financial condition.

We believe that we have rights necessary to use the data that is incorporated into our offerings. However, in the future, data providers could withdraw their data from us if there is a competitive reason to do so, or if legislation is passed restricting the use of the data, or if judicial interpretations are issued restricting use of the data that we currently use in our products and services. If a substantial number of data providers were to withdraw their data, our ability to provide our offerings to our clients could be materially adversely impacted.

For example, in order to deliver the full functionality offered by some of our solutions, we need access, on behalf of our customers, to sources of pricing and claims data, much of which is managed by a limited number of health plans and other third parties. We have developed various long-term and short-term data sharing relationships with certain health plans and other third parties, including many of the largest health plans in the United States. The health plans and other third parties that we currently work with may, in the future, change their position and limit or eliminate our access to pricing and claims data, increase the costs charged to us for access to data, provide data to us in more limited or less useful formats, or restrict our permitted uses of data. Furthermore, some health plans have developed or are developing their own proprietary price and quality estimation tools and may perceive continued cooperation with us as a competitive disadvantage and choose to limit or discontinue our access to pricing and claims data. Failure to continue to maintain and expand our access to pricing and claims data will adversely impact our ability to continue to serve existing clients and expand our offerings to new clients.

If the validity of an informed consent from a patient enrolled in a clinical trial with one of our clients was challenged, we could be forced to stop using some of our resources, which would hinder the development efforts for our sequencing and molecular analysis solutions.

We have implemented measures designed to ensure that clinical data and genetic and other biological samples that we receive from our customers have been collected from subjects who have provided appropriate informed consent for purposes which extend to our product development activities. We seek to ensure that these data and samples are provided for processing via our molecular profiling solution in a manner that does not use readily individually identifiable information of the subject. We also have measures in place to ensure that the subjects from whom the data and samples are collected do not retain or have conferred on them any proprietary or commercial rights to the data or any discoveries derived from them. Further, our clients may conduct clinical trials in several different countries, and, to a large extent, we rely upon them to comply with the subject's informed consent and with local law and international regulation. The collection of data and samples in many different countries results in complex legal questions regarding the adequacy of informed consent and the status of genetic material under many different legal systems. The subject's informed consent obtained in any country could be challenged in the future, and those informed consents could prove invalid, unlawful, or otherwise inadequate for our purposes. Any findings against us, or our clients, could deny us access to or force us to stop using some of our clinical samples, which would hinder our molecular profiling solution development efforts. We could become involved in legal challenges, which could consume our management and financial resources.

Failure by our clients to obtain proper permissions and waivers may result in claims against us or may limit or prevent our use of data which could harm our business.

We require our clients and business associates to provide necessary notices and to obtain necessary permissions and waivers for use and disclosure of the information that we receive, and we require contractual assurances from them that they have done so and will do so. If they do not obtain necessary permissions and waivers, then our use and disclosure of information that we receive from them or on their behalf may be limited or prohibited by state or federal privacy laws or other laws. This could impair our functions, processes and databases that reflect, contain or are based upon such data and may prevent use of such data. In addition, this could interfere with or prevent creation or use of rules, analyses or other data-driven activities that benefit us. Moreover, we may be subject to claims or liability for use or disclosure of information by reason of lack of valid notice, permission or waiver. These claims or liabilities could subject us to unexpected costs and adversely affect our operating results.

Our sales cycle can be lengthy and unpredictable, which may cause our revenue and operating results to fluctuate significantly.

Our sales cycle can be lengthy and unpredictable. Our sales efforts involve educating our customers about the use and benefits of our offerings and solutions, including the technical capabilities of our solutions and the potential cost savings and productivity gains achievable by deploying them. Additionally, many of our potential clients are typically already in long-term contracts with their current providers and face significant costs associated with transitioning to our offerings and solutions. As a result, potential customers typically undertake a significant evaluation process, which frequently involves not only NantHealth solutions and component systems infrastructure and platforms but also their existing capabilities and solutions and can result in a lengthy sales cycle. We spend substantial time, effort and money on our sales efforts without any assurance that our efforts will produce any sales. In addition, purchases of NantHealth solutions and component systems infrastructure are frequently subject to budget constraints, multiple approvals and unplanned administrative, processing and other delays. For example, currently, hospitals in the United States face significant uncertainty over the continuing impact of federal government budgets, and continuing changes in the implementation and deadlines for compliance with the Patient Protection and Affordable Care Act of 2010, or ACA, and other healthcare reform legislation, as well as potential future statutes and rulemaking. Many of our potential hospital clients have used all or a significant portion of their revenues to comply with federal mandates to adopt electronic medical records to maintain their Medicaid and Medicare reimbursement levels. In the event we are unable to manage our lengthy and unpredictable sales cycle, our business may be adversely affected.

We bill our clients and recognize revenue over the term of the contract for certain of our products. As a result, near term declines in new or renewed agreements for these products may not be reflected immediately in our operating results and may be difficult to discern.

A portion of our revenue in each quarter is derived from agreements entered with our clients during previous quarters. Consequently, a decline in new or renewed agreements in any one quarter may not be fully reflected in our revenue for that quarter. Such declines, however, would negatively affect our revenue in future periods and the effect of significant downturns in sales of and market demand for certain of our solutions, and potential changes in our rate of renewals or renewal terms, may not be fully reflected in our results of operations until future periods. In addition, we may be unable to adjust our cost structure rapidly, or at all, to take account for reduced revenue. Our subscription model for certain of our solutions also makes it difficult for us to increase our total revenue through additional sales in any quarterly period, as revenue from new clients for those products must be recognized over the applicable term of the agreement. Accordingly, the effect of changes in the industry impacting our business or changes we experience in our new sales may not be reflected in our short-term results of operations.

A large portion of our revenue is derived from a small group of our clients, and the loss of such clients could adversely affect our business.

During the year ended December 31, 2019, we derived 16.8% of our revenue through a single reseller, who contracts with various health plans and other healthcare entities to manage the utilization of specialty health services for their covered members, and another 13.8% and 12.9% of our revenue through two of NaviNet's major customers. During the year ended December 31, 2020, we derived 17.5% of our revenue through this reseller and another 15.5%, 14.9%, and 11.2% of our revenue through three of NaviNet's major customers. We cannot guarantee that these clients will continue to contract for our services or acquire new services. The contract governing the reseller relationship is terminable without cause on or after June 30, 2022 if 12 months' prior written notice is provided, but the health plan customer cannot terminate without cause. Additionally, the reseller may not be successful in reselling our products to its covered members, or covered members may reduce their orders for our products for a number of reasons. If the agreements with these major customers do not renew or our reseller is unsuccessful in reselling our solutions, our revenue could be greatly reduced, which would materially and adversely affect our business. The contracts with the three largest NaviNet customers expired near the end of Q4 2020 and two of these customers renewed for additional terms. One of these customers elected not to renew its agreement and has requested our continued provision of services on a transition basis. We continue to engage in discussions with this customer regarding supplemental services and business opportunities that may extend beyond the service termination date. Customer churn is a natural part of our business and, while there is no guarantee that we will be able to offset the loss of this customer in the short term, we continue to develop new product enhancements and offerings to help drive customer acquisition and expansion opportunities to replace this lost revenue in the long term.

If our existing clients do not continue or renew their agreements with us, renew at lower fee levels or decline to purchase additional applications and services from us, our business and operating results will suffer.

We expect to derive a significant portion of our revenue from renewal of existing customer agreements, and sales of additional applications and services to existing clients. As a result, achieving high customer satisfaction to keep existing clients and sell additional platform offerings is critical to our future operating results.

Factors that may affect the renewal rate for our offerings and our ability to sell additional solutions include:

- the price, performance and functionality of our offerings;
- the availability, price, performance and functionality of competing solutions;
- a client's desire and ability to develop their own internal solution;
- our ability to develop complementary applications and services;
- our continued ability to access the pricing and claims data necessary to enable us to deliver reliable data in our cost estimation and price transparency offering to customers;
- the stability, performance and security of our hosting infrastructure and hosting services;
- changes in healthcare laws, regulations or trends; and
- the business environment of our clients, in particular, headcount reductions by our clients.

For our SaaS solutions, we typically enter into master services agreements with our clients. These agreements generally have stated terms of three to five years. Our clients have no obligation to renew their subscriptions for our offering after the term expires. In addition, our clients may negotiate terms less advantageous to us upon renewal, which may reduce our revenue from these clients. Factors that are not within our control may contribute to a reduction in our contract revenue. For instance, our clients may reduce their number of employees, which would result in a corresponding reduction in the number of employee users eligible for our offering and thus a lower aggregate monthly services fee. Our future operating results also depend, in part, on our ability to sell new solutions to our existing customers. If our clients fail to renew their agreements, renew their agreements upon less favorable terms or at lower fee levels, or fail to purchase new solutions from us, our revenue may decline, or our future revenue may be constrained.

In addition, a significant number of our customer agreements allow our clients to terminate such agreements for convenience at certain times, typically with one to three months advance notice. Any cancellations of such agreements would have a negative result on our business and results of operations.

If any new applications and services we may develop or acquire are not adopted by our customers, or if we fail to continue to innovate and develop or acquire new applications and services that are adopted by customers, then our revenue and operating results will be adversely affected.

In addition to past investments made in NantHealth solutions, and component systems infrastructure and platforms, we have invested, and will continue to invest, significant resources in research and development and in acquisitions to enhance our existing offerings and introduce new high-quality applications and services. If existing clients are not willing to make additional payments for such new applications or services, or if new clients do not value such new applications or services, our business and operating results will be harmed. If we are unable to predict user preferences or our industry changes, or if we are unable to modify our offering and services on a timely basis, we might lose clients. Our operating results would also suffer if our innovations and acquisitions are not responsive to the needs of our clients, are not appropriately timed with market opportunity or are not effectively brought to market.

Security breaches, loss of data and other disruptions could compromise sensitive information related to our business and/or protected health information or prevent us from accessing critical information and expose us to liability, which could adversely affect our business and our reputation.

In the ordinary course of our business, we and our clients, consultants, contractors and business associates collect and store petabytes of sensitive data, including legally protected health information, personally identifiable information, intellectual property and proprietary business information owned or controlled by ourselves or our clients, payers, providers and partners. We manage and maintain our applications and data by utilizing a combination of on-site systems, managed data center systems, and cloud-based data center systems. These applications and data encompass a wide variety of business-critical information, including research and development information, commercial information and business and financial information. We face four primary risks relative to protecting this critical information, including loss of access risk, inappropriate disclosure risk, inappropriate modification risk and the risk of being unable to adequately monitor our controls over the first three risks.

The secure processing, storage, maintenance and transmission of this critical information is vital to our operations and business strategy, and we devote significant resources to protecting such information. Although we take measures to protect sensitive information from unauthorized access or disclosure, our information technology and infrastructure, and that of our third-party billing and collections provider, may be vulnerable to attacks by hackers or viruses or breached due to employee error, malfeasance or other disruptions. Any such breach or interruption could compromise our networks and the information stored there could be accessed by unauthorized parties, publicly disclosed, lost or stolen. Any such access, disclosure or other loss of information could result in legal claims or proceedings, liability under laws that protect the privacy of personal information, such as the Health Insurance Portability and Accountability Act, or HIPAA, and regulatory penalties. Although we have implemented security measures and a formal, dedicated enterprise security program to prevent unauthorized access to patient data, there is no guarantee we can continue to protect our online portal or will be able to protect our mobile applications from breach. Unauthorized access, loss or dissemination could also disrupt our operations, including our ability to conduct our analyses, provide test results, bill payers, providers or patients, process claims and appeals, provide customer assistance services, conduct research and development activities, collect, process and prepare company financial information, provide information about our products and other patient and physician education and outreach efforts through our website, manage the administrative aspects of our business and damage our reputation, any of which could adversely affect our business.

The U.S. Office of Civil Rights may impose penalties on us if we do not fully comply with requirements of HIPAA. Penalties will vary significantly depending on factors such as whether we knew or should have known of the failure to comply, or whether our failure to comply was due to willful neglect. These penalties include civil monetary penalties of \$100 to \$50,000 per violation, up to an annual cap of \$1,500,000 for identical violations. A person who knowingly obtains or discloses individually identifiable health information in violation of HIPAA may face a criminal penalty of up to \$50,000 per violation and up to one-year imprisonment. The criminal penalties increase to \$100,000 per violation and up to five years imprisonment if the wrongful conduct involves false pretenses, and to \$250,000 per violation and up to 10 years imprisonment if the wrongful conduct involves the intent to sell, transfer, or use identifiable health information for commercial advantage, personal gain, or malicious harm. The U.S. Department of Justice is responsible for criminal prosecutions under HIPAA. Furthermore, in the event of a breach as defined by HIPAA, we have specific reporting requirements to the Office of Civil Rights under the HIPAA regulations as well as to affected individuals, and we may also have additional reporting requirements to other state and federal regulators, including the Federal Trade Commission, and/or to the media. Issuing such notifications can be costly, time and resource intensive, and can generate significant negative publicity. Breaches of HIPAA may also constitute contractual violations that could lead to contractual damages or terminations.

In addition, the interpretation and application of consumer, health-related and data protection laws in the United States, Europe and elsewhere are often uncertain, contradictory and in flux. It is possible that these laws may be interpreted and applied in a manner that is inconsistent with our practices. If so, this could result in government-imposed fines or orders requiring that we change our practices, which could adversely affect our business. In addition, these privacy regulations vary between states, may differ from country to country, and may vary based on whether testing is performed in the United States or in the local country. Complying with these various laws could cause us to incur substantial costs or require us to change our business practices and compliance procedures in a manner adverse to our business.

We rely on Internet infrastructure, bandwidth providers, data center providers, other third parties and our own systems for providing services to our users, and any failure or interruption in the services provided by these third parties or our own systems could expose us to litigation and negatively impact our relationships with clients, adversely affecting our brand and our business.

Our ability to deliver our internet-based services is dependent on the development and maintenance of the infrastructure of the Internet by third parties. This includes maintenance of a reliable network backbone with the necessary speed, data capacity and security for providing reliable Internet access and services. Our services are designed to operate without interruption in accordance with our service level commitments. However, we expect that we will in the future experience interruptions and delays in services and availability from time to time. We rely on internal systems as well as third-party vendors, including data center providers and bandwidth providers, to provide our services. We store, process and transport petabytes of data and the nature of our business requires us to scale our storage capacity. In the event we are unable to scale appropriately, we may lose clients or fail to realize the network effects of our system and our business may be impaired. We do not maintain redundant systems or facilities for some of these services. In the event of a catastrophic event with respect to one or more of these systems or facilities, we may experience an extended period of system unavailability, which could negatively impact our relationship with users. To operate without interruption, both we and our service providers must guard against:

- damage from fire, power loss and other natural disasters;
- communications failures;
- software and hardware errors, failures and crashes;
- security breaches, computer viruses and similar disruptive problems; and
- other potential interruptions.

Any disruption in the network access or co-location services provided by third-party providers or any failure of or by third-party providers or our own systems to handle current or higher volume of use could significantly harm our business. We exercise limited control over third-party vendors, which increases our vulnerability to problems with services they provide.

Any errors, failures, interruptions or delays experienced in connection with third-party technologies and information services or our own systems could negatively impact our relationships with clients and adversely affect our business and could expose us to third-party liabilities. Although we maintain insurance for our business, the coverage under our policies may not be adequate to compensate us for all losses that may occur. In addition, we cannot provide assurance that we will continue to be able to obtain adequate insurance coverage at an acceptable cost.

The reliability and performance of the Internet may be harmed by increased usage or by denial-of-service attacks. The Internet has experienced a variety of outages and other delays as a result of damages to portions of its infrastructure, and it could face outages and delays in the future. These outages and delays could reduce the level of Internet usage as well as the availability of the Internet to us for delivery of our internet-based services. Any failure to offer high-quality technical support services may adversely affect our relationships with our clients and harm our financial results.

Because of the complexity of the issues facing healthcare providers and payers and the inherent complexity of our solutions to such issues, our clients depend on our support organization to resolve any technical issues relating to our offering. In addition, our sales process is highly dependent on the quality of our offerings, our business reputation and on strong recommendations from our existing clients. Any failure to maintain high-quality and highly responsive technical support, or a market perception that we do not maintain high-quality and highly responsive support, could harm our reputation, adversely affect our ability to sell our offering to existing and prospective clients, and harm our business, operating results and financial condition.

We offer technical support services with our offerings and we may be unable to respond quickly enough to accommodate short-term increases in customer demand for support services, particularly as we increase the size of our customer base. We also may be unable to modify the format of our support services to compete with changes in support services provided by competitors. It is difficult to predict customer demand for technical support services and if customer demand increases significantly, we may be unable to provide satisfactory support services to our clients and their constituents. Additionally, increased customer demand for these services, without corresponding revenue, could increase costs and adversely affect our operating results.

If we cannot implement NantHealth solutions and component systems infrastructure and platforms for customers in a timely manner, we may lose customers and our reputation may be harmed.

Our clients have a variety of different data formats, enterprise applications and infrastructures, and NantHealth solutions and component systems infrastructure and platforms, must support our clients' data formats and integrate with complex enterprise applications and infrastructures. If our platforms do not currently support a customer's required data format or appropriately integrate with a customer's applications and infrastructure, then we must configure our systems infrastructure to do so, which increases our expenses. Additionally, we do not control our clients' implementation schedules. As a result, if our clients do not allocate internal resources necessary to meet their implementation responsibilities or if we face unanticipated implementation difficulties, the implementation may be delayed. Further, our implementation capacity has at times constrained our ability to successfully implement our offering for our clients in a timely manner, particularly during periods of high demand. If the customer implementation process is not executed successfully or if execution is delayed, we could incur significant costs, customers could become dissatisfied and decide not to increase usage of our offering, or not to use our offering beyond an initial period prior to their term commitment or, in some cases, revenue recognition could be delayed. In addition, competitors with more efficient operating models with lower implementation costs could penetrate our customer relationships.

Additionally, large and demanding enterprise clients, who currently comprise most of our customer base, may request or require specific features or functions unique to their business processes, which increase our upfront investment in sales and deployment efforts and the revenue resulting from the clients under our typical contract length may not cover the upfront investments. If prospective large customers require specific features or functions that we do not offer, then the market for our offering will be more limited and our business could suffer.

In addition, supporting large clients could require us to devote significant development services and support personnel and strain our personnel resources and infrastructure. Furthermore, if we are unable to address the needs of these clients in a timely fashion or further develop and enhance our offering, or if a client or its constituents are not satisfied with the quality of work performed by us or with the offerings delivered or professional services rendered, then we could incur additional costs to address the situation, we may be required to issue credits or refunds for pre-paid amounts related to unused services, the profitability of that work might be impaired and the client's dissatisfaction with our offerings could damage our ability to expand the number of applications and services purchased by that client. Furthermore, if a client or its constituents do not opt into or need certain aspects of our offering, there may not be enough demand for that aspect of our offering to warrant future purchases by that client, or the client may seek to terminate their relationship with us. These clients may not renew their agreements, seek to terminate their relationship with us or renew on less favorable terms. Moreover, negative publicity related to our client relationships, regardless of its accuracy, may further damage our business by affecting our ability to compete for new business with current and prospective clients. If any of these were to occur, our revenue may decline, and our operating results could be adversely affected.

We face intense competition in our markets, and we may be unable to compete effectively for new clients.

Although our product offerings target the new and emerging market for evidence-based personalized healthcare technology solutions, we compete against a variety of large software vendors and smaller specialized companies, open source initiatives and custom development efforts, which provide solutions in the specific markets we address. Our principal competitors include:

- Payer-provider collaboration vendors, such as Availity, LLC, Change Healthcare, Inc., Experian Information Solutions, Inc. (including its Experian Health/Passport division), Healthx, Inc. and Health Trio, LLC;
- Payer-Provider Disease Treatment Decision Support vendors, including The Advisory Board Company, Castlight Health, Evolent Health, eviCore Healthcare, HealthCatalyst, Inc., International Business Machines Corporation, or IBM, Inovalon Holdings, Inc., NCH Management Systems, Inc. (dba New Century Health), Oncology Analytics, Inc., and Truven Health Analytics (acquired by IBM).
- Molecular analysis vendors, such as Caris Life Sciences, Inc., Foundation Medicine, Inc., Guardant Health, Inc., Paradigm Diagnostics, Inc., Personal Genome Diagnostics, Inc. and Tempus Labs;
- Network monitoring vendors, including Zabbix, LLC, LogicMonitor, Inc., SolarWinds Worldwide, LLC and Datadog, Inc.

The principal competitive factors in our markets include product features, performance and support, product scalability and flexibility, ease of deployment and use, total cost of ownership and time to value. Some of our actual and potential competitors have advantages over us, such as longer operating histories, significantly greater financial, technical, marketing or other resources, stronger brand and business user recognition, larger intellectual property portfolios and broader global distribution and presence. Further, competitors may be able to offer products or functionality similar to ours at a more attractive price than we can by integrating or bundling their software products with their other product offerings. In addition, our industry is evolving rapidly and is becoming increasingly competitive. Larger and more established companies may focus on creating a learning system or solutions that could directly compete with one or more of our offerings. If companies move a greater proportion of their data and computational needs to the cloud, new competitors may emerge which offer services comparable to ours or that are better suited for cloud-based data, and the demand for one or more of our offerings may decrease. Smaller companies could also launch new products and services that we do not offer and that could gain market acceptance quickly.

In recent years, there have been significant acquisitions and consolidation by and among our actual and potential competitors. We anticipate this trend of consolidation will continue, which will present heightened competitive challenges to our business. In particular, consolidation in our industry increases the likelihood of our competitors offering bundled or integrated products, and we believe that it may increase the competitive pressures we face with respect to our solutions. If we are unable to differentiate one or more of our offerings from the integrated or bundled products of our competitors, such as by offering enhanced functionality, performance or value, we may see decreased demand for those solutions, which would adversely affect our business, results of operations, financial condition and cash flows. Further, it is possible that continued industry consolidation may impact our clients' and prospective clients' perceptions of the viability of smaller or even medium-sized software firms and, consequently, their willingness to use technology solutions from such firms. Similarly, if customers seek to concentrate their technology purchases in the product portfolios of a few large providers, we may be at a competitive disadvantage regardless of the performance and features of our offerings. We believe that in order to remain competitive at the large enterprise level, we will need to develop and expand relationships with resellers and large system integrators that provide a broad range of products and services. If we are unable to compete effectively, our business, results of operations, financial condition and cash flows could be materially and adversely affected.

The healthcare technology industry in which we operate is subject to rapidly changing technologies and trends, each of which could contribute to making our products obsolete.

The markets for cloud-based data platforms and internet-based business services such as NantHealth solutions and component systems infrastructure and platforms and their associated offerings, are in the early stages of development, but the market is competitive even at this stage, and we expect it to attract increased competition, which could make it hard for us to succeed. We currently face competition for one or more of our offerings from a range of companies. In addition, large, well-financed health plans, with whom we cooperate and on whom we depend in order to obtain the pricing and claims data we need to deliver our offerings to customers have in some cases developed their own cost and quality estimation tools and provide these solutions to their customers at discounted prices or often for free. If enterprises do not perceive the benefits of our services, then the market for these services may not develop at all, or it may develop more slowly than we expect, either of which would materially adversely affect our operating results. In addition, as a new company in this unproven market, we have limited insight into trends that may develop and affect our business. We may make errors in predicting and reacting to relevant business trends, which could harm our business. If any of these risks occur, it could materially adversely affect our business, financial condition or results of operations.

Healthcare industry consolidation could impose pressure on our prices, reduce our potential client base and reduce demand for one or more of our offerings.

Many hospitals, imaging centers and third-party payers have consolidated to create larger healthcare enterprises with greater market and purchasing power. In addition, group purchasing organizations and managed care organizations could increase pressure on providers of healthcare related services to reduce prices. If this consolidation trend continues, it could reduce the size of our potential customer base and give the resulting enterprises greater bargaining or purchasing power, which may lead to erosion of the prices for our software or decreased margins for our offerings.

Our offerings may experience quality problems from time to time that can result in decreased sales, decreased operating margins and harm to our reputation.

We sell and/or rely upon complex software and hardware products and services that may contain design and manufacturing defects. Sophisticated operating system software and applications, such as those sold by us, often contain “bugs” that can unexpectedly interfere with the software’s intended operation. Our online services may from time to time experience outages, service slowdowns, or errors. Defects may also occur in components and products we purchase from third parties. There can be no assurance we will be able to detect and fix all defects in the hardware, software and services third parties sell to us. Failure to do so could result in lost revenue, significant warranty and other expenses and harm to our reputation.

Risks related to our software and medical device solutions

Our solutions may experience design or manufacturing defects from time to time that can result in reduced network effects to NantHealth solutions and component systems infrastructure and platforms which could materially and adversely affect our business.

We sell and/or rely upon software and hardware solutions, that could contain design or manufacturing defects in their materials, hardware, or software. These defects could include defective materials or components, or “bugs” that can unexpectedly interfere with the products’ intended operations or result in inaccurate data. Failure to detect, prevent, or fix defects could result in a variety of consequences, including returns of products, regulatory proceedings, product recalls, and litigation, which could harm our revenue and operating results. If our products fail to provide accurate measurements and data to users, then the network effects of our adaptive clinical learning system may be materially and adversely impacted.

Our solutions could give rise to product liability claims and product recall events that could materially and adversely affect our financial condition and results of operations.

The development, manufacturing and sale of medical devices and/or test services that utilize medical devices expose us to significant risk of product liability claims, product recalls and, occasionally, product failure claims. We face an inherent business risk of financial exposure to product liability claims if the use of our solutions or services, including lab testing services, results in personal injury or death. Substantial product liability litigation currently exists within the medical device industry. Some of our solutions or services may become subject to product liability claims and/or product recalls. Future product liability claims and/or product recall costs may exceed the limits of our insurance coverages or such insurance may not continue to be available to us on commercially reasonable terms, or at all. In addition, a significant product liability claim, or product recall could significantly damage our reputation for producing safe, reliable and effective products, making it more difficult for us to market and sell our products in the future. Consequently, a product liability claim, product recall or other claim could have a material adverse effect on our business, financial condition, operating results and cash flows.

The sale of test services and medical device products in the United States is subject to government regulations and we may not be able to obtain certain necessary clearances or approvals.

The design, manufacturing, labeling, distribution and marketing of medical devices in the United States are subject to extensive and rigorous regulation by the FDA and applicable state agencies. Unless an exemption applies, we or our collaborative partners must obtain prior clearance or approval from the FDA for medical devices we intend to commercialize, which can be expensive, time consuming, and uncertain and can cause lengthy delays before we can begin selling our products. We cannot be sure that:

- we or any collaborative partner will make timely filings with the FDA;
- the FDA will act favorably or quickly on these submissions;
- we or any collaborative partner will not be required to submit additional information, including extensive clinical data;
- we or any collaborative partner will not be required to submit an application for premarket approval, rather than a 510(k) premarket notification submission or a de novo application as described herein;
- government regulations of IVDs or LDTs may change over time, imposing additional regulatory requirements and/or regulatory clearances, approvals or authorizations before we can market or distribute our products or product candidates; or
- other significant difficulties and costs related to obtaining FDA clearance or approval will not be encountered.

The FDA imposes strict labeling and other regulatory requirements as a condition of its clearance or approval, any of which could limit our ability to market our products. Further, if we or our collaborative partners wish to modify a product after FDA clearance of a premarket notification or approval of a premarket approval application, including changes in indications or other modifications that could affect safety or efficacy, additional clearances or approvals will be required from the FDA. Any request by the FDA for additional data, or any requirement by the FDA that we or our collaborative partners conduct clinical studies or submit to the more rigorous and lengthier premarket approval process, could result in substantial expenses and significant delays in bringing our products to market. Similarly, any labeling or other conditions or restrictions imposed by the FDA on the marketing of our products could hinder our ability to effectively market our products. Any of the above actions by the FDA could delay or prevent altogether our ability to market and distribute our products. Further, there may be new FDA policies or changes in FDA policies that could be adverse to us.

Material modifications to the intended use or technological characteristics of our devices that we distribute as part of our solutions may require new 510(k) clearances or premarket approvals prior to implementing the modifications, or require us to recall or cease marketing the modified devices until these clearances or approvals are obtained. We may not be able to obtain additional 510(k) clearances or premarket approvals for new products or for modifications to, or additional indications for, our devices in a timely fashion, or at all. Delays in obtaining required future clearances would harm our ability to introduce new or enhanced product in a timely manner, which in turn would harm our future growth. If the FDA disagrees and requires new clearances or approvals for any of these modifications, we may be required to recall and to stop selling or distributing our medical devices as modified, which could harm our operating results and require us to redesign our products. In these circumstances, we may be subject to significant enforcement actions.

Even if we obtain clearance or approval to sell medical device products or test services that utilize or are comprised of a medical device, we are subject to ongoing requirements and inspections that could lead to the restriction, suspension or revocation of our clearance or approval.

Ongoing compliance with applicable regulatory requirements is enforced in the United States, in part, through periodic inspections by state and federal agencies, including the FDA, and in international jurisdictions by comparable regulatory authorities, including Notified Bodies. In the past, we have conducted investigations designed to determine whether we meet such regulatory requirements and have identified non-conformances and areas that need improvement. Though we strive to comply with such regulations, there can be no guarantee that the applicable regulators will find that we are in compliance with such regulations in the future. Failure to comply with these regulatory requirements could result in adverse administrative and enforcement actions, including, among other things, warning letters, fines, injunctions, civil penalties, recall or seizure of products, total or partial suspension of production, failure to obtain premarket clearance or premarket approval for devices, withdrawal of approvals previously obtained, and criminal prosecution. The restriction, suspension or revocation of regulatory clearances and approvals or any other failure to comply with regulatory requirements would limit our ability to operate and could increase our costs.

Risks related to our OpenNMS Open Source Business

Our OpenNMS business incorporates third-party open source software, which could negatively affect our ability to sell our OpenNMS platform and subject us to possible litigation.

Our OpenNMS software includes third-party open source software and we intend to continue to incorporate third-party open source software in our OpenNMS platform in the future. There is a risk that the use of third-party open source software in our OpenNMS software could impose conditions or restrictions on our ability to monetize our software. Although we monitor the incorporation of open source software into our OpenNMS platform to avoid such restrictions, we cannot be certain that we have not incorporated open source software in our OpenNMS platform in a manner that is inconsistent with our licensing model. Certain open source projects also include other open source software and there is a risk that those dependent open source libraries may be subject to inconsistent licensing terms. This could create further uncertainties as to the governing terms for the open source software we incorporate.

In addition, the terms of certain open source licenses to which we are subject have not been interpreted by U.S. or foreign courts and there is a risk that open source software licenses could be construed in a manner that imposes unanticipated restrictions or conditions on our use of such software. Additionally, we may, from time to time, face claims from third parties claiming ownership of, or demanding release of, the software or derivative works that we developed using such open source software, which could include proprietary portions of our source code, or otherwise seeking to enforce the terms of the open source licenses. These claims could result in litigation and could require us to make those proprietary portions of our source code freely available, purchase a costly license or cease offering the implicated software or services unless and until we can re-engineer them to avoid infringement. This re-engineering process could require significant additional research and development resources and we may not be able to complete it successfully.

In addition to risks related to license requirements, use of third-party open source software can lead to greater risks than use of third-party commercial software, as open source licensors generally do not provide warranties. In addition, licensors of open source software included in our offerings may, from time to time, modify the terms of their license agreements in such a manner that those license terms may become incompatible with our licensing model and thus could, among other consequences, prevent us from incorporating the software subject to the modified license. Any of these risks could be difficult to eliminate or manage and if not addressed, could have a negative effect on our business, results of operations and financial condition.

Because of the characteristics of open source software, there may be fewer technology barriers to entry in the open source market by new competitors and it may be relatively easy for new and existing competitors with greater resources than we have to compete with our OpenNMS open source business.

One of the characteristics of open source software is that the governing license terms generally allow liberal modifications of the code and distribution thereof to a wide group of companies and/or individuals. As a result, others could easily develop new software products or services based upon those open source programs that compete with existing open source software that we support and incorporate into our OpenNMS platform. Such competition with use of the open source projects that we utilize can materialize without the same degree of overhead and lead time required by us, particularly if the customers do not value the differentiation of our proprietary components. It is possible for new and existing competitors, including those with greater resources than ours, to develop their own open source software or hybrid proprietary and open source software offerings, potentially reducing the demand for, and putting price pressure on, our OpenNMS platform. In addition, some competitors make open source software available for free download or use or may position competing open source software as a loss leader. We cannot guarantee that we will be able to compete successfully against current and future competitors or that competitive pressure and/or the availability of open source software will not result in price reductions, reduced revenue and gross margins and loss of market share, any one of which could seriously harm our OpenNMS business.

We do not control and may be unable to predict the future course of open source technology development, including the ongoing development of open source components used in our OpenNMS platform, which could reduce the market appeal of our OpenNMS platform and damage our reputation.

We do not control many aspects of the development of the open source technology in our OpenNMS platform. Different groups of open source software programmers collaborate with one another to develop the software projects in our OpenNMS platform. Given the disparate inputs from various developers, we cannot control entirely how an open source project develops and matures. Also, different open source projects may overlap or compete with the ones that we incorporate into our OpenNMS platform. The technology developed by one group for one project may become more widely used than that developed by others. If we acquire or adopt a new technology and incorporate it into our OpenNMS platform but a competing technology becomes more widely used or accepted, the market appeal of our OpenNMS platform may be reduced and that could harm our reputation, diminish our brand and result in decreased revenue.

If open source software programmers, many of whom we do not employ, or our own internal programmers do not continue to develop and enhance open source technologies, we may be unable to develop new technologies, adequately enhance our existing technologies or meet customer requirements for innovation, quality and price.

We rely to a significant degree on a number of open source software programmers, or committers and contributors, to develop and enhance components of our OpenNMS platform. Additionally, members of the corresponding open source project management committees, are primarily responsible for the oversight and evolution of the codebases of important components of the open source data management ecosystem. If the open source data management committers and contributors fail to adequately further develop and enhance open source technologies, or if the committees fail to oversee and guide the evolution of open source data management technologies in the manner that we believe is appropriate to maximize the market potential of our solutions, then we would have to rely on other parties, or we would need to expend additional resources, to develop and enhance our OpenNMS platform. We also must devote adequate resources to our own internal programmers to support their continued development and enhancement of open source technologies, and if we do not do so, we may have to turn to third parties or experience delays in developing or enhancing open source technologies. We cannot predict whether further developments and enhancements to these technologies would be available from reliable alternative sources. In either event, our development expenses could be increased and our technology release and upgrade schedules could be delayed. Delays in developing, completing or delivering new or enhanced components to our platform could cause our offerings to be less competitive, impair customer acceptance of our solutions and result in delayed or reduced revenue for our solutions.

Our use of open source software could prevent us from offering products that include open source software or require us to obtain licenses on unfavorable terms.

The technologies we use incorporate "open source" software, and we may incorporate open source software in the future. Open source licenses may subject us to certain unfavorable conditions, including requirements that we offer our products that incorporate the open source software for no cost, that we make publicly available the source code for any modifications or derivative works we create based upon, incorporating or using the open source software, or that we license such modifications or derivative works under the terms of the particular open source license. We may license to others some of our software through open source projects which require us to make the source code publicly available, and therefore can affect our ability to protect our intellectual property rights with respect to that software. If an author or other third party that distributes open source software that we use or license were to allege that we had not complied with the conditions of the applicable license, we could be required to incur significant legal expenses defending against such allegations and could be subject to significant damages, enjoined from offering our products that contained the open source software, required to release proprietary source code, required to obtain licenses from third parties or otherwise required to comply with the unfavorable conditions unless and until we can re-engineer the product so that it complies with the open source license or does not incorporate the open source software. Any of the foregoing could disrupt our ability to offer our products and harm our business, revenue and financial results.

The acquisition of OpenNMS may not be successful and could disrupt our business and harm our financial condition.

On July 22, 2020, we acquired OpenNMS. We may not be able to successfully integrate the personnel, operations, businesses, products or technologies of the OpenNMS investment. Integration may be particularly challenging as we have limited experience in the business of network management software and services. We may find that we do not have adequate operations or expertise to manage the new business. The integration of OpenNMS may also divert management's time and resources from our core business, which could impair our relationships with our current employees, customers and strategic partners and disrupt our operations. Our OpenNMS platform also may not perform to our expectations for various reasons, including the loss of key personnel and/or customers. If we fail to integrate our OpenNMS business or realize the expected benefits, we may lose the return on this acquisition or incur additional transaction costs and our business and financial condition may be harmed as a result.

Risks related to our relationships with other companies

Our ability to achieve profitability for our molecular sequencing and analysis solutions is dependent upon the success of NantOmics.

We currently secure all of our rights to our sequencing and molecular analysis solutions, including GPS Cancer and Omics Core, from NantOmics. The prospects for these offerings depend in part on the expertise and financial strength of NantOmics, which is controlled by Dr. Patrick Soon-Shiong, our Chairman and Chief Executive Officer. We rely on NantOmics to handle certain aspects of our sequencing and molecular analysis solutions, including GPS Cancer and Omics Core, including but not limited to:

- acquiring appropriate and cost-efficient supplies to produce our sequencing and molecular analysis solutions;
- delivering our sequencing and molecular analysis solutions in a timely manner to us;

- continuing to keep our sequencing and molecular analysis solutions up to date and on pace with current clinical and market developments;
- filing, prosecuting and maintaining patents that cover our sequencing and molecular analysis solutions;
- complying with CLIA regulations and maintaining a CLIA license and all other applicable state laboratory licenses, including through periodic inspections;
- obtaining required regulatory authorizations, clearances, or approvals for diagnostic tests;
- complying with applicable federal, state, and local laws and regulations pertaining to testing human samples; and
- hiring qualified personnel experienced in completing highly complex laboratory tests.

We are responsible for various aspects of delivering our sequencing and molecular analysis solutions, including but not limited to communications with patients and providers such as providing interpretations of the molecular analysis reports and resolving any disputes, ensuring customer satisfaction, billing and collections and patient and physician engagement. At June 30, 2020, December 31, 2018, September 30, 2018, June 30, 2017 and December 31, 2016, we determined that other-than-temporary impairments of \$28.2 million, \$14.8 million, \$80.4 million, \$33.9 million and \$29.8 million, respectively, in the value of the investment in NantOmics had occurred, predominantly attributed to declines in the value of goodwill. The estimated decline in fair value at June 30, 2020 was predominantly attributed to (i) limited progress by NantOmics in completing revenue generating transactions for paid molecular analysis services for the research and pharmaceutical industries; (ii) limited progress in completing licensing transactions for proprietary molecular analysis technologies and/or intellectual property of NantOmics; and (iii) our decision to shift future laboratory operations in-house related to the GPS Cancer and Omics Core products to better control the supply chain and CMS reimbursement process, which we expect to result in reduced fees to NantOmics. The estimated decline in fair value at December 31, 2018 was primarily due to altered pricing assumptions for the reseller agreement between the Company and NantOmics. The estimated declines in fair value at September 30, 2018, June 30, 2017 and December 31, 2016 were primarily caused by changes in projected GPS Cancer revenue, due to delays in the Company's GPS Cancer revenue growth and changes in the risk profile of our financial projections for NantOmics. If NantOmics is unable to successfully handle its aspects of our sequencing and molecular analysis solutions or we are unable to successfully handle our aspects of delivering our sequencing and molecular analysis solutions, our business will be adversely affected.

If we are unable to renew our agreement with NantOmics or locate a suitable replacement upon expiration of such agreement at comparable prices, our business could be materially and adversely affected.

Our second amended and restated exclusive reseller agreement with NantOmics, as amended, or the Reseller Agreement, was renewed on a non-exclusive basis and will expire on December 31, 2023. Although NantOmics generally does not have the right to terminate prior to that date, we may be unable to further renew the Reseller Agreement or execute a new arrangement at comparable favorable prices to provide us with molecular profiling tests. Furthermore, NantOmics currently has what we believe is the most comprehensive and clinically validated CAP- and CLIA-certified whole genome/exome and RNA laboratory. If we were unable to fulfill our delivery requirements for our sequencing and molecular analysis solutions to our clients, our business could be materially and adversely affected.

Additionally, through our agreement with NantOmics, we purchase our sequencing and molecular analysis solutions, including GPS Cancer, at a discount to market price. We also receive revenue from our sale of NantOmics' whole genome/exome sequencing and RNA analysis. If we are reimbursed at an amount equal to or less than a certain threshold, our sequencing and molecular analysis solutions will not be profitable and our business will be materially and adversely affected. Since we expect that pricing pressure from government and third party payers, increasing competition from companies and others offering whole genome/exome sequencing and reductions in the costs of providing whole genome/exome sequencing as technologies mature, will combine to drive the price of whole genome/exome sequencing down, we cannot guarantee that the price we are able to charge for our sequencing and molecular analysis solutions will continue to yield a profit under the terms of the NantOmics reseller agreement.

We rely on third-party computer hardware and software that may be difficult to replace or which could cause errors or failures of our service which could damage our reputation, harm our ability to attract and maintain clients and decrease our revenue.

We rely on computer hardware purchased or leased and software licensed from third parties in order to offer our service. These licenses are generally commercially available on varying terms; however, it is possible that this hardware and software may not continue to be available on commercially reasonable terms, or at all. Any loss of the right to use any of this hardware or software could result in delays in providing NantHealth solutions (including Eviti, NaviNet apps, and our sequencing and molecular analysis solutions) until equivalent technology is either developed by us, or, if available, is identified, obtained and integrated, which could harm our business. Any errors or defects in third-party hardware or software could result in errors or a failure of our service which could damage our reputation, harm our ability to attract and maintain clients and decrease our revenue.

We are heavily dependent on our senior management, particularly Dr. Patrick Soon-Shiong, and a loss of a member of our senior management team in the future could harm our business.

If we lose members of our senior management, we may not be able to find appropriate replacements on a timely basis, and our business could be adversely affected. Our existing operations and continued future development depend to a significant extent upon the continued performance and active participation of certain key individuals, including Dr. Patrick Soon-Shiong, our Chairman, Chief Executive Officer and our principal stockholder. Although we expect Dr. Patrick Soon-Shiong will continue to devote on average at least 20 hours per week to our company, he will continue to primarily focus on NantKwest, Inc., or NantKwest, a publicly-traded, clinical-stage immunotherapy company, of which he is Chairman and Chief Executive Officer. Dr. Patrick Soon-Shiong will also devote time to other companies operating under NantWorks, a collection of multiple companies in the healthcare and technology space that Dr. Patrick Soon-Shiong founded in 2011. We do not believe Dr. Patrick Soon-Shiong has any material conflicting obligations as a result of his involvement with other companies. Additionally, we are dependent on commercial relationships with various other parties affiliated with NantWorks and with Dr. Patrick Soon-Shiong, including NantOmics, as described in Note 19 of the accompanying notes to the Consolidated Financial Statements, and we may enter into additional relationships in the future. If Dr. Patrick Soon-Shiong was to cease his affiliation with us or with NantWorks, these entities may be unwilling to continue these relationships with us on commercially reasonable terms, or at all. The risks related to our dependence upon Dr. Patrick Soon-Shiong are particularly acute given his ownership percentage and role in our company. If we were to lose Dr. Patrick Soon-Shiong, we may not be able to find appropriate replacements on a timely basis and our financial condition and results of operations could be materially adversely affected. We have not entered into, nor do we intend to enter into, an employment agreement with Dr. Patrick Soon-Shiong.

We face significant competition for employees from other healthcare-related companies, which include both publicly-traded and privately-held companies, and we may not be able to hire new employees quickly enough to meet our needs. To induce valuable employees to remain at our company, in addition to salary and cash incentives, we have provided equity incentives that vest over time and, in some cases, upon the occurrence of certain events. The value to employees of these equity incentives that vest over time may be significantly affected by movements in our stock price that are beyond our control and may at any time be insufficient to counteract more lucrative offers from other companies. Although we have employment agreements with certain of our key employees, these employment agreements provide for at-will employment, which means that any of our employees could leave our employment at any time, with or without notice. We do not maintain "key man" insurance policies on the lives of these individuals or the lives of any of our other employees.

If we and NantOmics are unable to support demand for our sequencing and molecular analysis solutions, including GPS Cancer, including ensuring that we have adequate capacity to meet increased demand, or we or NantOmics are unable to successfully manage the evolution of its molecular information platform, our business could suffer.

As our volume grows, we and NantOmics will need to increase capacity and improve processes to support growing demand. Our sequencing and molecular analysis solutions will need additional certified laboratory scientists and other scientific and technical personnel to process higher volumes of our molecular information products. Portions of our process are not automated and will require additional personnel to scale. We and NantOmics will also need to purchase additional equipment, some of which can take several months or more to procure, setup and validate, and will need to increase our software and computing capacity to meet increased demand. There is no assurance that any of these increases in scale, expansion of personnel, equipment, software and computing capacities, or process enhancements will be successfully implemented.

As additional products are commercialized, including molecular profiling solutions for additional disease indications, we and NantOmics will need to incorporate new equipment, implement new technology systems and laboratory processes, and hire new personnel with different qualifications. Failure to manage growth or a transition to new technologies or processes could result in turnaround time delays, higher product costs, declining product quality, deteriorating customer service, and slower responses to competitive challenges. A failure in any one of these areas could make it difficult for us to meet market expectations for our products and could damage our reputation and the prospects for our business.

Risks related to our business generally

We have in the past and may in the future acquire other companies or technologies, which could divert our management's attention, result in dilution to our stockholders and otherwise disrupt our operations and adversely affect our operating results.

Part of our business model is the acquisition of technologies and businesses that promote our transformational vision for personalized healthcare. We have in the past and may in the future seek to acquire or invest in additional businesses, applications, services and/or technologies that we believe complement or expand our offerings, enhance our technical capabilities or otherwise offer growth opportunities. The pursuit of potential acquisitions may divert the attention of management and cause us to incur various expenses in identifying, investigating and pursuing suitable acquisitions, whether or not they are consummated.

For example, in January 2016, we acquired NaviNet to bolster our payer platform and, in February 2018, we acquired NantHealth Labs to expand into the liquid tumor profiling market and sold a commercial liquid biopsy test product (marketed as Liquid GPS). In July 2020, we acquired OpenNMS to expand our software and SaaS service offerings for both the healthcare sector and other industries. In the second quarter of 2019, we ceased commercial sales of the Liquid GPS product and intend to explore strategically aligned clinical studies for our liquid biopsy platform. Realizing the benefits of these acquisitions and any future acquisition depend upon the successful integration into our existing operations, and we may not be able to integrate the acquired personnel, operations and technologies successfully, or effectively manage the combined business following the acquisition. We also may not realize the anticipated benefits from any acquired business due to several factors, including:

- inability to integrate or benefit from acquired technologies or services in a profitable manner;
- unanticipated costs or liabilities associated with the acquisition;
- difficulty integrating the accounting systems, operations and personnel of the acquired business;
- difficulties and additional expenses associated with supporting legacy products and hosting infrastructure of the acquired business;
- difficulty converting the customers of the acquired business onto our platform and contract terms, including disparities in the revenue, licensing, support or professional services model of the acquired company;
- difficulty in cross-selling our existing solutions and offerings to the acquired business' customers;
- diversion of management's attention from other business concerns;
- adverse effects to our existing business relationships with business partners and customers as a result of the acquisition;
- the potential loss of key employees;
- use of resources that are needed in other parts of our business; and
- use of substantial portions of our available cash to consummate the acquisition.

In addition, a significant portion of the purchase price of companies we acquire may be allocated to acquired goodwill and other intangible assets, which must be assessed for impairment at least annually. As of December 31, 2020, the total value of our goodwill and intangible assets, net of accumulated amortization was \$146.3 million. If our acquisitions do not yield expected returns, we have in the past, and may in the future, be required to take charges to our operating results based on this impairment assessment process, which could adversely affect our results of operations.

Acquisitions could also result in dilutive issuances of equity securities or the incurrence of debt, which could adversely affect our operating results. In addition, if the acquisition of NaviNet, NantHealth Labs, OpenNMS, or any other business we may acquire in the future fails to meet our expectations, our operating results, business and financial position may suffer.

We cannot assure you that we will be successful in integrating certain assets of NaviNet, NantHealth Labs, OpenNMS, or any other businesses or technologies we may acquire. The failure to successfully integrate these businesses could have a material adverse effect on our business, financial condition, or results of operations.

If our new components and enhancements to our molecular platform do not achieve sufficient market acceptance, our financial results and competitive position will suffer.

We and NantOmics spend substantial amounts of time and money to research and develop new tests and to optimize the utility and value of our tests for physicians and their patients. When we develop a new component or enhancement to our test platform, we typically incur expenses and expend resources upfront to develop, market and promote the new component. Therefore, when we develop and introduce new components or enhancements to our test platform, they must achieve high levels of market acceptance in order to justify the amount of our investment in developing and bringing them to market. For example, if GPS Cancer does not garner widespread market adoption and implementation, our growth prospects, future financial results and competitive position could suffer.

Our new components or enhancements to our test platform and changes to our test platform could fail to attain sufficient market acceptance for many reasons, including:

- our failure to predict physician and patient market demand accurately in terms of test platform functionality and to supply a test platform that meets this demand in a timely fashion;
- delays in releasing to the market our new components or enhancements to our test platform to the market;
- failing to keep our sequencing and molecular analysis solutions up to date and on pace with current clinical and market developments;
- complexity in the implementation or utilization of the new components and enhancements;
- negative publicity about their performance or effectiveness;
- introduction or anticipated introduction of competing test platforms and products by our competitors;
- poor business conditions for our physician customers, causing them to delay IT purchases.

If our new components or enhancements and changes do not achieve adequate acceptance in the market, physician customers and their patients may choose to use a competitor's platform instead, our competitive position would be impaired, and our revenue would be diminished. The adverse effect on our financial results may be particularly acute because of the significant research, development, marketing, sales and other expenses we would have incurred in connection with the new components or enhancements.

Business disruptions could seriously harm our future revenue and financial condition and increase our costs and expenses.

Our operations, and those of our contractors, consultants, customers, resellers or partners, could be subject to earthquakes, power shortages, telecommunications failures, water shortages, floods, hurricanes, typhoons, fires, extreme weather conditions, medical epidemics or pandemics, acts of terrorism, acts of war and other natural or man-made disasters or business interruptions, for which we are predominantly self-insured. For example, we have corporate offices in Los Angeles County, California near major earthquake faults and fire zones. We attempt to mitigate these risks through various means including redundant infrastructure, disaster recovery plans, separate test systems and change control and system security measures, but our precautions will not protect against all potential problems. If our clients' access is interrupted because of problems in the operation of our facilities, we could be exposed to significant claims by clients or their patients, particularly if the access interruption is associated with problems in the timely delivery of funds due to clients or medical information relevant to patient care. The occurrence of any of these business disruptions could seriously harm our operations and financial condition and increase our costs and expenses.

Also, in March 2020, the World Health Organization declared the novel coronavirus (COVID-19) a pandemic. In the same month, the President of the United States declared a State of National Emergency due to the COVID-19 outbreak. Many jurisdictions, particularly in North America (including the United States), Europe and Asia, as well as U.S. states in which we operate, including California, have adopted or are considering laws, rules, regulations or decrees intended to address the COVID-19 outbreak, including implementing travel restrictions, closing non-essential businesses and/or restricting daily activities. In addition, many communities have limited, and are considering to further limit, social mobility and gathering. To date, there has been no material adverse impact to our business from the COVID-19 pandemic. Given the unprecedented and evolving nature of the pandemic, the future impact of these changes and potential changes on the Company and our contractors, consultants, customers, resellers and partners is unknown at this time. For example, the demand for our solutions among certain of our provider or payer customers could be impacted in the future, either through reduced transaction volume for solutions by which the Company derives revenue on a per transaction basis or through the delayed closing or signing of new or add-on contracts with customers that are dealing with impacts from the pandemic.

However, in light of the uncertainties regarding economic, business, social, health and geopolitical conditions, our revenues, earnings, liquidity, and cash flows could be adversely affected, whether on an annual or quarterly basis. Continued impacts of the COVID-19 pandemic could materially adversely affect our current and long-term account receivable collectibility, as our negatively impacted customers from the pandemic may request temporary relief, delay, or not make scheduled payments. In addition, the deployment of our solutions may represent a large portion of our customers' investments in software technology. Decisions to make such an investment are impacted by the economic environment in which the customers operate. Uncertain global geopolitical, economic and health conditions and the lack of visibility or the lack of financial resources may cause some customers to reduce, postpone or terminate their investments, or to reduce or not renew ongoing paid services, adversely impacting our revenues or timing of revenue. Health conditions in some geographic areas where our customers operate could impact the economic situation of those areas. These conditions, including the COVID-19 pandemic, may present risks for health and limit the ability to travel for our employees, which could further lengthen our sales cycle and delay revenue and cash flows in the near-term. Moreover, the potential for future infections among our employees and/or consultants is possible until effective treatments for COVID-19 are found and such future infections (depending on the severity, scope and location) could impact the Company's ability to continue operations in the ordinary course.

As of the date of this Annual Report on Form 10-K, we serve our clients primarily from third-party data hosting facilities. We do not control the operation of these third-party facilities, and they are vulnerable to damage or interruption from earthquakes, floods, fires, power loss, telecommunications failures and similar events. They are also subject to break-ins, sabotage, intentional acts of vandalism and similar misconduct. Despite precautions taken at these facilities, the occurrence of a natural disaster or a crime, a decision to close the facilities without adequate notice or other unanticipated problems at these facilities could result in lengthy interruptions in our service. Even with the disaster recovery arrangements, our service could be interrupted.

We may, from time to time, transition our data hosting to new or alternative providers. In connection with these transitions, we will be moving, transferring or installing some of our equipment, data and software to and in other facilities. Despite precautions taken during this process, any unsuccessful transfers may impair the delivery of our one or more of our offerings. Further, any damage to, or failure of, our systems generally could result in interruptions in one or more of our offerings. Interruptions in our service may reduce our revenue, cause us to issue credits or pay penalties, may cause clients to terminate one or more of our offerings and may adversely affect our renewal rates and our ability to attract new clients. Our business may also be harmed if our clients and potential clients believe one or more of our offerings are unreliable.

If we fail to develop widespread brand awareness, our business may suffer.

We believe that developing and maintaining widespread awareness of our brand is critical to achieving widespread adoption of our offering and attracting new customers. Brand promotion activities may not generate customer awareness or increase revenue, and even if they do, any increase in revenue may not offset the expenses we incur in building our brand. If we fail to successfully promote and maintain our brand, or incur substantial expenses in doing so, we may fail to attract or retain customers necessary to realize a sufficient return on our brand-building efforts, or to achieve the widespread brand awareness that is critical for broad customer adoption of our offerings.

Our marketing efforts depend significantly on our ability to receive positive references from our existing customers.

Our marketing efforts depend significantly on our ability to call on our current customers to provide positive references to new, potential customers. Given our limited number of long-term customers, the loss or dissatisfaction of any customer could substantially harm our brand and reputation, inhibit the market adoption of our offerings and impair our ability to attract new customers and maintain existing customers. Any of these consequences could have a material adverse effect on our business, financial condition and results of operations.

If we become subject to product liability or other litigation, we may incur substantial liabilities and may be required to limit commercialization of our current and any future products.

We are from time to time subject to legal proceedings and claims that arise in the ordinary course of business, such as claims brought by our clients in connection with commercial disputes and employment claims made by our current or former employees. Litigation, regardless of merit, may result in substantial costs and may divert management's attention and resources, which may harm our business.

Our services, some of which involve recommendations and advice to healthcare providers regarding complex business and operational processes, regulatory and compliance issues and patient treatment options, may give rise to liability claims by our members or by third parties who bring claims against us. In addition, third parties, including former employees, have in the past, and may in the future, file lawsuits alleging non-compliance with government regulations. Investigating and defending such claims, even if they lack merit, may require significant time and resources and could damage our reputation and harm our business.

We maintain product and other insurance, but this insurance may not fully protect us from the financial impact of defending against product liability or other claims. Any product liability or other claim brought against us, with or without merit, could increase our insurance rates or prevent us from securing insurance coverage in the future. Additionally, any product liability lawsuit could damage our reputation, or cause current clients to terminate existing agreements and potential clients to seek other vendors, any of which could impact our results of operations.

We are subject to changes in and interpretations of financial accounting matters that govern the measurement of our performance, one or more of which could adversely affect our business.

Based on our reading and interpretations of relevant guidance, principles or concepts issued by, among other authorities, the American Institute of Certified Public Accountants, the Financial Accounting Standards Board and the SEC, we believe our current sales and licensing contract terms and business arrangements have been properly reported. However, this guidance involves interpretations, and there continue to be issued interpretations and guidance for applying the relevant standards to a wide range of sales and licensing contract terms and business arrangements that are prevalent in the software industry. For example, we must apply significant judgment to determine whether revenue should be recognized on a gross or net basis for our reseller arrangements, including revenue under our reseller agreement with NantOmics. Disagreement with the regulators as to our current interpretations and any future changes by the regulators of existing accounting standards or changes in our business practices could result in changes in our revenue recognition and/or other accounting policies and practices that could adversely affect our business.

Failure to manage our future growth effectively could increase our expenses, decrease our revenue and prevent us from implementing our business strategy.

To manage our anticipated future growth effectively, we must continue to maintain and may need to enhance our information technology infrastructure, financial and accounting systems and controls and manage expanded operations in geographically-diverse locations. We also must attract, train and retain a significant number of qualified sales and marketing personnel, professional services personnel, software engineers, technical personnel and management personnel. Failure to manage our rapid growth effectively could lead us to over invest or under invest in technology and operations, could result in weaknesses in our infrastructure, systems or controls, could give rise to operational mistakes, losses, loss of productivity or business opportunities, and could result in loss of employees and reduced productivity of remaining employees. Our growth could require significant capital expenditures and may divert financial resources from other projects, such as the development of new services. If our management is unable to effectively manage our growth, our expenses may increase more than expected, our revenue could decline or may grow more slowly than expected, and we may be unable to implement our business strategy.

Our estimates of market opportunity and forecasts of market growth may prove to be inaccurate, and even if the market in which we compete achieves the forecasted growth, our business could fail to grow at similar rates, if at all.

Our market opportunity estimates and growth forecasts are subject to significant uncertainty and are based on assumptions and estimates that may not prove to be accurate. Our estimates and forecasts regarding the size and expected growth of the healthcare information technology and molecular analysis markets may prove to be inaccurate. Even if the markets in which we compete meet our size estimates and forecasted growth, our business could fail to grow at similar rates, if at all.

The industry-and market-related estimates we rely upon are based on various assumptions and may prove to be inaccurate.

Industry-and market-related estimates we rely upon, including, without limitation, estimates related to our market size and industry data, are subject to uncertainty and are based on assumptions which may not prove to be accurate. This may have negative consequences, such as us overestimating our potential market opportunity.

We are exposed to risks related to our international operations and failure to manage these risks may adversely affect our operating results and financial condition.

We are a global company with operations both inside and outside the United States. For example, we have foreign wholly owned subsidiaries, including NantHealth Singapore Pte Ltd., New NantHealth Canada, Inc. and NaviNet Limited. As a result, a portion of our operations are conducted by and/or rely on entities outside the United States. We may therefore be denied access to our customers or suppliers as a result of economic, legislative, political and military conditions in such countries.

International operations are subject to several other inherent risks, and our future results could be adversely affected by several factors, including:

- requirements or preferences for domestic products or solutions, which could reduce demand for our products;
- differing existing or future regulatory and certification requirements;
- management communication and integration problems resulting from cultural and geographic dispersion;
- greater difficulty in collecting accounts receivable and longer collection periods;
- difficulties in enforcing contracts;
- difficulties and costs of staffing and managing non-U.S. operations;
- the uncertainty of protection for intellectual property rights in some countries;

- tariffs and trade barriers, export regulations and other regulatory and contractual limitations on our ability to sell our products;
- greater risk of a failure of foreign employees to comply with both U.S. and foreign laws, including export and antitrust regulations, the FCPA and any trade regulations ensuring fair trade practices;
- heightened risk of unfair or corrupt business practices in certain geographies and of improper or fraudulent sales arrangements that may impact financial results and result in restatements of, or irregularities in, financial statements;
- potentially adverse tax consequences, including multiple and possibly overlapping tax structures;
- the impact of public health epidemics on our employees and suppliers as well as the global economy such as the coronavirus currently impacting China; and
- political and economic instability, political unrest and terrorism.

In addition, the expansion of our existing international operations and entry into additional international markets has required, and will continue to require, significant management attention and financial resources. These factors and other factors could harm our ability to gain future revenues and, consequently, materially impact our business, financial condition and results of operations.

The United Kingdom's vote to leave the European Union will have uncertain effects and could adversely affect us.

On June 23, 2016, a referendum was held on the UK's membership in the European Union, or the EU, the outcome of which was a vote in favor of leaving the EU, or the Brexit.

On June 23, 2016, the electorate in the United Kingdom, or UK, voted in favor of leaving the European Union, or EU, (commonly referred to as the "Brexit"). The UK held an election in December 2019, resulting in a majority government that is expected to complete its departure from the EU whether or not a formal withdrawal agreement is in place with the European Union. Following the United Kingdom's departure from the EU on January 31, 2020 under the terms of the Withdrawal Agreement, there will be a "transition period" ending December 31, 2020 during which the United Kingdom will essentially be treated as a Member State of the EU and the regulatory regime will remain the same across the United Kingdom and the EU. Following the end of this transition period, we are subject to additional regulatory requirements under the United Kingdom as well as EU regulatory requirements and those of other foreign jurisdictions where we conduct our business, which will increase our compliance costs and liability. Brexit has also created multiple routes for obtaining marketing authorization in the United Kingdom, Great Britain or Northern Ireland, which may impact our commercialization strategy. Brexit creates an uncertain political and economic environment in the UK and potentially across other EU member states for the foreseeable future, including during any period while the terms of Brexit are being negotiated and such uncertainties could impair or limit our ability to transact business in the member EU states. In the long term, the United Kingdom may develop its own legislation that diverges from that in the EU.

Further, Brexit could adversely affect European and worldwide economic or market conditions and could contribute to instability in global financial markets, and the value of the Pound Sterling currency or other currencies, including the Euro. We are exposed to the economic, market and fiscal conditions in the UK and the EU and to changes in any of these conditions. Brexit could change the legal and regulatory framework within the UK where we operate and is likely to lead to legal uncertainty and potentially divergent national laws and regulations as the UK determines which EU laws to replace or replicate. Consequently, no assurance can be given as to the impact of Brexit and, in particular, no assurance can be given that our operating results, financial condition and prospects would not be adversely impacted by the result.

Risks related to intellectual property

We may be unable to adequately protect, and we may incur significant costs in enforcing, our intellectual property and other proprietary rights.

Our success depends in part on our ability to enforce our intellectual property and other proprietary rights. We rely upon a combination of trademark, trade secret, copyright, patent and unfair competition laws, as well as license and access agreements and other contractual provisions, to protect our intellectual property and other proprietary rights. In addition, we attempt to protect our intellectual property and proprietary information by requiring certain of our employees and consultants to enter into confidentiality, noncompetition and assignment of inventions agreements. Any disclosure to or misappropriation by third parties of our confidential proprietary information could enable competitors to quickly duplicate or surpass our technological achievements, eroding our competitive position in the market. Moreover, we do not have any written contractual agreements with respect to any intellectual property and technology that relate to our business developed in the future by our Chairman and Chief Executive Officer, Dr. Patrick Soon-Shiong. In the event we are unable to protect our intellectual property and proprietary information, including in particular with respect to such property or information created by Dr. Patrick Soon-Shiong, our business would be adversely affected. In addition, our attempts to protect our intellectual property may be challenged by others or invalidated through administrative process or litigation.

We have developed, acquired, and licensed numerous patents and patent applications and we possess substantial know-how and trade secrets relating to the development and commercialization of healthcare technology products and services. In January 2016, we acquired NaviNet, a leading payer-provider collaboration platform, and in February 2018 we acquired NantHealth Labs, Inc. (formerly Liquid Genomics, Inc.) a liquid tumor profiling company. As part of these and other acquisitions, we acquired patents and other intellectual property. As of December 31, 2020, our patent portfolio consisted of the following matters relating to our proprietary technology and inventions: (i) thirteen (13) issued U.S. utility patents and two (2) issued U.S. design patents; (ii) nineteen (19) pending U.S. utility patent applications; (iii) thirteen (13) issued patents outside the United States; and (iv) seven (7) patent applications pending in jurisdictions outside the United States. Five (5) of these assets are jointly owned. We believe we have intellectual property rights that are necessary to commercialize our healthcare technology products and services. However, our patent applications may not result in issued patents, and, even if issued, the patents may be challenged and invalidated. Moreover, our patents and patent applications may not be sufficiently broad to prevent others from practicing our technologies or developing competing products. We also face the risk that others may independently develop similar or alternative technologies or may design around our proprietary property.

If any patents are issued in the future, they may not provide us with any competitive advantages, or may be successfully challenged by third parties. Agreement terms that address non-competition are difficult to enforce in many jurisdictions and may not be enforceable in any particular case. To the extent that our intellectual property and other proprietary rights are not adequately protected, third parties might gain access to our proprietary information, develop and market products or services similar to ours, or use trademarks similar to ours, each of which could materially harm our business. Existing United States federal and state intellectual property laws offer only limited protection. Moreover, the laws of other countries in which we now, or may in the future, conduct operations or contract for services may afford little or no effective protection of our intellectual property. Further, our platforms incorporate open source software components that are licensed to us under various public domain licenses. While we believe we have complied with our obligations under the various applicable licenses for open source software that we use, there is little or no legal precedent governing the interpretation of many of the terms of certain of these licenses and therefore the potential impact of such terms on our business is somewhat unknown. The failure to adequately protect our intellectual property and other proprietary rights could materially harm our business.

The patent application process, also known as patent prosecution, is expensive and time consuming, and we and any current or future licensors and licensees may not be able to prepare, file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we or any current or future licensors or licensees, will fail to identify patentable aspects of inventions made in the course of development and commercialization activities before it is too late to obtain patent protection on them. Moreover, in some circumstances, we may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the patents, covering technology that we license from or license to third parties and are therefore reliant on our licensors or licensees. Therefore, these and any of our patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. Although we are unaware of any material defects that we believe would affect the validity or enforceability of our patents, defects of form in the preparation or filing of our patents or patent applications may exist, or may arise in the future, for example, with respect to proper priority claims, inventorship, and the like, although we are unaware of any such defects that we believe are of material importance. If we or any current or future licensors or licensees, fail to establish, maintain or protect such patents and other intellectual property rights, such rights may be reduced or eliminated. If any current or future licensors or licensees are not fully cooperative or disagree with us as to the prosecution, maintenance or enforcement of any patent rights, such patent rights could be compromised. If there are material defects in the form, preparation or prosecution of our patents or patent applications, such patents or applications may be invalid and unenforceable. Any of these outcomes could impair our ability to prevent competition from third parties, which may have an adverse impact on our business.

The strength of patent rights involves complex legal and scientific questions and can be uncertain. This uncertainty includes changes to the patent laws through either legislative action to change statutory patent law or court action that may reinterpret existing law or rules in ways affecting the scope or validity of issued patents. The patent applications that we own or license may fail to result in issued patents in the United States or foreign countries with claims that cover our products or services. Even if patents do successfully issue from the patent applications that we own or license, third parties may challenge the validity, enforceability or scope of such patents, which may result in such patents being narrowed, invalidated or held unenforceable. Any successful challenge to our patents could deprive us of exclusive rights necessary for the successful commercialization of our products and services. Furthermore, even if they are unchallenged, our patents may not adequately protect our products and services, provide exclusivity for our products and services, or prevent others from designing around our claims. If the breadth or strength of protection provided by the patents we hold or pursue with respect to our products and services is challenged, it could dissuade companies from collaborating with us to develop, or threaten our ability to commercialize, our products and services.

Patents have a limited term. In the United States, the natural expiration of a utility patent is generally 20 years after its earliest effective non-provisional filing date and the natural expiration of a design patent is generally 14 years after its issue date, unless the filing date occurred on or after May 13, 2015, in which case the natural expiration of a design patent is generally 15 years after its issue date. Various extensions may be available; however, the life of a patent, and the protection it affords, is limited. Without patent protection for our products and services, we may be open to competition. Further, if we encounter delays in our development efforts, the period of time during which we could market our products and services under patent protection may be reduced.

In addition to the protection afforded by patents, we also rely on trade secret protection to protect proprietary know-how that may not be patentable or that we elect not to patent, processes for which patents may be difficult to obtain or enforce, and any other elements of our products and services that involve proprietary know-how, information or technology that is not covered by patents. However, trade secrets can be difficult to protect. We cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed despite having such confidentiality agreements. If the steps taken to maintain our trade secrets are deemed inadequate, we may have insufficient recourse against third parties for misappropriating any trade secrets. In addition, in some situations, any confidentiality agreement we may have with an employee, consultant, advisor, or others may conflict with, or be subject to, the rights of third parties with whom our employees, consultants, or advisors have previous employment or consulting relationships. To the extent that our employees, consultants, advisors, or contractors use any intellectual property owned by third parties in their work for us, disputes may arise as to the rights in any related or resulting know-how and inventions. Misappropriation or unauthorized disclosure of our trade secrets could significantly affect our competitive position and may have a material adverse effect on our business. Furthermore, trade secret protection does not prevent competitors from independently developing substantially equivalent information and techniques and we cannot guarantee that our competitors will not independently develop substantially equivalent information and techniques. The FDA, as part of its Transparency Initiative, is currently considering whether to make additional information of life science companies publicly available on a routine basis, including information that we may consider to be trade secrets or other proprietary information, and it is not clear at the present time how the FDA's disclosure policies may change in the future, if at all.

Obtaining and maintaining our patent protection depends on compliance with various procedural, documentary, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

The United States Patent and Trademark Office, or USPTO, and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent prosecution process. Periodic maintenance fees and various other governmental fees on any issued patent and/or pending patent applications are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of a patent or patent application. We have systems in place to remind us to pay these fees, and we employ an outside firm and rely on our outside counsel to pay these fees. While an inadvertent lapse may sometimes be cured by payment of a late fee or by other means in accordance with the applicable rules, there are many situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. If we fail to maintain the patents and patent applications directed to our products and services, our competitors might be able to enter the market earlier than should otherwise have been the case, which would have a material adverse effect on our business.

Litigation or other proceedings or third-party claims of intellectual property infringement could require us to spend significant time and money and could prevent us from selling our products and services.

Our commercial success depends in part on our avoiding infringement of the patents and proprietary rights of third parties, for example, the intellectual property rights of competitors. Our research, development and commercialization activities may be subject to claims that we infringe or otherwise violate patents owned or controlled by third parties. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are developing our products and services. As the healthcare technology industry expands and more patents are issued, the risk increases that our activities related to our products and services may give rise to claims of infringement of the patent rights of others. We cannot assure you that our products and services will not infringe existing or future patents. The coverage of patents is subject to interpretation by the courts, and the interpretation is not always uniform. We may not be aware of patents that have already issued that a third party, for example, a competitor in our market, might assert are infringed by our products and services. It is also possible that patents of which we are aware, but which we do not believe are relevant to our products and services, could nevertheless be found to be infringed by our product candidates. Nevertheless, we are not aware of any issued patents that we believe could prevent us from marketing our healthcare products and services. There may also be patent applications that have been filed but not published that, when issued as patents, could be asserted against us.

Third parties have asserted and may in the future assert that we are employing their proprietary technology without authorization. As we continue to commercialize our products and services in their current or updated forms, launch new products and services and enter new markets, we expect that competitors will claim that our products and services infringe their intellectual property rights as part of business strategies designed to impede our successful commercialization and entry into new markets. We occasionally receive letters from third parties inviting us to take licenses under, or alleging that we infringe, their patents or trademarks. Third parties may have obtained, and may in the future obtain, patents under which such third parties may claim that the use of our technologies constitutes patent infringement.

If we are sued for patent infringement, we would need to demonstrate that our products or services either do not infringe the patent claims of the relevant patent or that the patent claims are invalid or unenforceable, and we may not be able to do this. Proving that a patent is invalid and/or unenforceable is difficult. For example, in the United States, proving invalidity requires a showing of clear and convincing evidence to overcome the presumption of validity enjoyed by issued patents. We could incur substantial costs and divert the attention of our management and technical personnel in defending ourselves or our licensors against any of these claims. Defense of these claims, regardless of their merit, would cause us to incur substantial expenses and, would be a substantial diversion of employee resources from our business. Any adverse ruling or perception of an adverse ruling in defending ourselves against these claims could have a material adverse impact on our business. Furthermore, parties making claims against us may be able to obtain injunctive or other relief, which could block our ability to develop, commercialize, and sell products or services, and could result in the award of substantial damages against us, potentially including treble damages and attorneys' fees if we are found to have willfully infringed a patent. In the event of a successful claim of infringement or misappropriation against us, we may be required to pay damages and obtain one or more licenses from third parties, pay royalties to the third party, redesign any infringing product, or be prohibited from selling certain products or services, all of which could have a material adverse impact on our business. Redesigning any infringing products may be commercially impractical, not readily feasible, and/ or require substantial time and monetary expenditure. Further, we cannot predict whether any required license would be available at all or whether it would be available on commercially reasonable terms.

In addition, we may be unable to obtain these licenses at a reasonable cost, if at all. We could therefore incur substantial costs related to royalty payments for licenses obtained from third parties, which could negatively affect our gross margins. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. Ultimately, we could be prevented from commercializing a product, or be forced to cease some aspect of our business operations, if, as a result of actual or threatened patent infringement claims, we are unable to enter into licenses on acceptable terms. Moreover, we could encounter delays in product or service introductions while we attempt to develop alternative products or services. Defense of any lawsuit or failure to obtain any of these licenses on favorable terms could prevent us from commercializing products and services, and the prohibition of sale of any of our products and services would materially affect our ability to grow and maintain profitability and have a material adverse impact on our business.

Defending ourselves in litigation is very expensive, particularly for a company of our size, and time-consuming. In addition to infringement claims against us, we may become a party to other patent litigation and other proceedings, including interference, derivation, or post-grant proceedings, such as, ex parte review, inter parties review, or post grant review, declared or granted by the USPTO and similar proceedings in foreign countries, regarding intellectual property rights with respect to our current or future products. The cost to us of any patent litigation or other proceeding, even if resolved in our favor, could be substantial. Some of our competitors may be able to sustain the costs of litigation or administrative proceedings more effectively than we can because of greater financial resources. Patent litigation and other proceedings may also absorb significant management time. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could impair our ability to compete in the marketplace. The occurrence of any of the foregoing could have a material adverse effect on our business, financial condition, or results of operations.

We may become involved in lawsuits to protect or enforce our patents or other intellectual property, or the patents of our licensors, which could be expensive, time consuming and ultimately unsuccessful.

Competitors may infringe or misappropriate our patents, trademarks, copyrights or other intellectual property, including our existing patents or patents that may issue to us in the future, or the patents of our licensors to which we have a license. To counter infringement or unauthorized use, we may be required to file infringement or inventorship claims to stop third party infringement, unauthorized use, or to correct inventorship, which can be expensive and time consuming and divert the time and attention of our management and scientific personnel. Any claims that we assert against perceived infringers could provoke these parties to assert counterclaims against us alleging that we infringe their patents, in addition to counterclaims asserting that our patents are invalid or unenforceable, or both. These competitors may further challenge the scope, validity or enforceability of our licensors' patents, requiring our licensors to engage in complex, lengthy and costly litigation or other proceedings. In any patent infringement proceeding, there is a risk that a court will decide that a patent of ours or of our licensors' is invalid or unenforceable, in whole or in part, and that we do not have the right to stop the other party from using the invention at issue. There is also a risk that, even if the validity of such patents is upheld, the court will construe the patent's claims narrowly or decide that we do not have the right to stop the other party from using the invention at issue on the grounds that our patent claims do not cover the invention. An adverse outcome in a litigation or proceeding involving our patents could limit our ability to assert our patents against those parties or other competitors and may curtail or preclude our ability to exclude third parties from making and selling similar or competitive products. Any of these occurrences could adversely affect our competitive business position, business prospects and financial condition. Similarly, if we assert trademark infringement claims, a court may determine that the marks we have asserted are invalid or unenforceable, or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In this case, we could ultimately be forced to cease use of such trademarks. An adverse determination of any litigation or other proceedings could put one or more of our patents at risk of being invalidated, held unenforceable or interpreted narrowly and could put our patent applications at risk of not issuing.

Interference, derivation or other proceedings, brought at the USPTO or any foreign patent authority may be necessary to determine the priority or patentability of inventions with respect to our patent applications or those our collaborators. Litigation or USPTO proceedings brought by us may fail. An unfavorable outcome in any such proceeding could require us to cease using the related technology or to attempt to license rights to it from the prevailing party or could cause us to lose valuable intellectual property rights. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms, if any license is offered at all. Even if we are successful, domestic or foreign litigation, or USPTO or foreign patent office proceedings may result in substantial costs and distraction to our management. We may not be able, alone or with collaborators, to prevent misappropriation of our trade secrets, confidential information or proprietary rights, particularly in countries where the laws may not protect such rights as fully as in the United States.

Even if we establish infringement, the court may decide not to grant an injunction against further infringing activity and instead award only monetary damages, which may or may not be an adequate remedy. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during litigation. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a material adverse effect on the price of shares of our common stock. Moreover, there can be no assurance that we will have sufficient financial or other resources to file and pursue such infringement claims, which often last for years before they are concluded. Even if we ultimately prevail in such claims, the monetary cost of such litigation and the diversion of the attention of our management and scientific personnel could outweigh any benefit we receive as a result of the proceedings.

Enforcing our intellectual property rights through litigation is very expensive, particularly for a company of our size, and time-consuming. Some of our competitors may be able to sustain the costs of litigation or administrative proceedings more effectively than we can because of greater financial resources. Patent litigation and other proceedings may also absorb significant management time. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could impair our ability to compete in the marketplace. The occurrence of any of the foregoing could have a material adverse effect on our business, financial condition, or results of operations.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation or administrative proceedings, there is a risk that some of our confidential information could be comprised by disclosure. In addition, during the course of litigation or administrative proceedings, there could be public announcements of the results of hearings, motions, or other interim proceedings or developments or public access to related documents. If investors perceive these results to be negative, the market price for our common stock could be significantly harmed.

We may not be able to protect our intellectual property rights throughout the world.

Third parties may attempt to commercialize competitive products or services in foreign countries where we do not have any patents or patent applications where legal recourse may be limited. This may have a significant commercial impact on our foreign business operations.

Filing, prosecuting and defending patents on our products and services in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. The requirements for patentability may differ in certain countries, particularly developing countries. For example, Europe has a heightened requirement for patentability of software inventions. Thus, even in countries where we do pursue patent protection, there can be no assurance that any patents will issue with claims that cover our products. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as laws in the United States and in some cases may even force us to grant a compulsory license to competitors or other third parties. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States or from selling or importing products concerning our healthcare technology into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and services and further, may export otherwise infringing products and services to territories where we have patent protection, but enforcement on infringing activities is inadequate. These products or services may compete with ours, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. In addition, certain countries in Europe and certain developing countries, including India and China, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In those countries, we may have limited remedies if our patents are infringed or if we are compelled to grant a license to our patents to a third party, which could materially diminish the value of those patents. This could limit our potential revenue opportunities. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we own or license. Finally, our ability to protect and enforce our intellectual property rights may be adversely affected by unforeseen changes in foreign intellectual property laws.

Developments in U.S. patent law could have a negative impact on our business.

As is the case with other healthcare technology companies, our success is in part dependent on intellectual property, particularly on obtaining and enforcing patents. Obtaining and enforcing patents in the healthcare technology industry involves both technological and legal complexity, and therefore, is costly, time consuming, and inherently uncertain. In addition, the United States has recently enacted and has now implemented wide-ranging patent reform legislation. Further, recent United States Supreme Court rulings have either narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents once obtained. Changes in U.S. patent law could diminish the value of patents in general, thereby impairing our ability to protect our products and services.

For our United States patent applications containing a claim not entitled to priority before March 16, 2013, there is a greater level of uncertainty in the patent law. In September 2011, the Leahy-Smith America Invents Act, or the America Invents Act, or AIA, was signed into law. The AIA includes a number of significant changes to United States patent law, including provisions that affect the way patent applications will be prosecuted and enforced in any patent litigation. The USPTO developed regulations and procedures to govern administration of the AIA, and many of the substantive changes to patent law associated with the AIA. It is not clear what other, if any, impact the AIA will have on the operation of our business. Moreover, the AIA and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business and financial condition.

An important change introduced by the AIA is that, as of March 16, 2013, the United States transitioned to a “first-to-file” system for deciding which party should be granted a patent when two or more patent applications are filed by different parties claiming the same invention. A third party that files a patent application in the USPTO on or after March 16, 2013 before us could therefore be awarded a patent covering an invention of ours even if we were the first to conceive of the invention. This will require us to be cognizant going forward of the time from invention to filing of a patent application. Furthermore, our ability to obtain and maintain valid and enforceable patents depends on whether the differences between our technology and the prior art allow our technology to be patentable over the prior art. Because patent applications in the United States and many other countries are confidential for a period of time after filing, we cannot be certain that we were the first to either file any patent application related to our products or services or invent any of the inventions claimed in our patents or patent applications.

Among some of the other changes introduced by the AIA are changes that limit where a patentee may file a patent infringement suit and provide opportunities for third parties to challenge any issued patent in the USPTO. This applies to all of our United States patents, even those issued before March 16, 2013. Because of a lower evidentiary standard in USPTO proceedings necessary to invalidate a patent claim compared to the evidentiary standard in United States federal court, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence may be insufficient to invalidate the claim if first presented in a district court action.

Two cases, one involving diagnostic method claims and the other involving “gene patents” were decided by the Supreme Court. On March 20, 2012, the Supreme Court issued a decision in *Mayo Collaborative v. Prometheus Laboratories, or Prometheus*, a case involving patent claims directed to optimizing the amount of drug administered to a specific patient. According to that decision, Prometheus’ claims failed to incorporate sufficient inventive content above and beyond mere underlying natural correlations to allow the claimed processes to qualify as patent-eligible processes that apply natural laws. On June 13, 2013, the Supreme Court subsequently decided *Association for Molecular Pathology v. Myriad Genetics, or Myriad*, a case brought by multiple plaintiffs challenging the validity of patent claims held by Myriad Genetics, Inc. relating to the breast cancer susceptibility genes BRCA1 and BRCA2, holding that isolated genomic DNA that exists in nature, such as the DNA constituting the BRCA1 and BRCA2 genes, is not patentable subject matter, but that cDNA, which is an artificial construct created from RNA transcripts of genes, may be patent eligible.

On July 3, 2012, the USPTO issued a memorandum to patent examiners providing interim guidelines for examining process claims for patent eligibility in view of the Supreme Court decision in *Prometheus*. The guidance indicates that claims directed to a law of nature, a natural phenomenon, or an abstract idea that do not meet the eligibility requirements should be rejected as non-statutory subject matter. Furthermore, a case involving financial software was even more recently decided by the Supreme Court. On June 19, 2014, the Supreme Court issued a decision in *Alice Corp. Pty. Ltd. v. CLS Bank Int’l, or Alice*, a case involving patent claims directed to methods of exchanging obligations as between parties so as to mitigate settlement risk in financial transactions, computer systems configured to carry out the method, and computer-readable media containing program code for performing the method. In *Alice*, the Court applied the analytic framework from *Prometheus* and extended its application to all types of claims. According to that decision, *Alice Corp.’s* claims failed to incorporate sufficient inventive content above and beyond the mere idea of intermediated transaction to allow the claimed processes to qualify as patent-eligible processes that apply the idea in a particular way to solve a problem. On December 16, 2014, the USPTO issued interim guidelines for examining claims for patent eligibility in view of the Supreme Court decision in *Alice*. The guidance indicates that claims reciting an abstract idea that do not include significantly more than the idea itself should be rejected as non-statutory subject matter. We cannot assure you that our efforts to seek patent protection for our technology, products, and services will not be negatively impacted by the decision in *Alice*, rulings in other cases, or changes in guidance or procedures issued by the USPTO. Since then, the USPTO has issued several memoranda on the topic of patent eligible subject matter, including those dated May 4, 2016, May 19, 2016, July 14, 2016, and November 2, 2016.

More specifically, we cannot fully predict what impact the Supreme Court’s decisions in *Prometheus*, *Myriad* and *Alice* may have on the ability of healthcare technology companies or other entities to obtain or enforce patents relating to genomic discoveries, diagnostic products and services or computer-implemented inventions in the future. Despite the USPTO’s guidance described above, these contours of when certain claims allegedly directed to laws of nature, natural phenomenon or abstract ideas meet the patent eligibility requirements are not clear and may take many years to develop via interpretation in the courts.

There are many patents claiming diagnostic methods based on similar or related correlations that issued before Prometheus, and although some of these patents may be invalid under the standard set forth in Prometheus, until successfully challenged, these patents are presumed valid and enforceable, and certain third parties could allege that we infringe, or request that we obtain a license to, these patents. Whether based on patents issued prior to or after Prometheus, we could have to defend ourselves against claims of patent infringement, or choose to license rights, if available, under patents claiming such methods. Similarly, there are many patents claiming software and/or business methods that include an abstract idea that issued before Alice, and although some of these patents may be invalid under the standard set forth in Prometheus and Alice, until successfully challenged, these patents are presumed valid and enforceable, and certain third parties could allege that we infringe, or request that we obtain a license to, these patents. Whether based on patents issued prior to or after Alice, we could have to defend ourselves against claims of patent infringement, or choose to license rights, if available, under patents claiming such software or business methods. In any of the foregoing or in other situations involving third-party intellectual property rights, if we are unsuccessful in defending against claims of patent infringement, we could be forced to pay damages or be subjected to an injunction that would prevent us from utilizing the patented subject matter in question if we are unable to obtain a license on reasonable terms. Such outcomes could materially affect our ability to offer our products and have a material adverse impact on our business. Even if we are able to obtain a license or successfully defend against claims of patent infringement, the cost and distraction associated with the defense or settlement of these claims could have a material adverse impact on our business. Moreover, one or more of our pending United States patent applications may be rejected based on the changes in the law and the standards set forth in Prometheus, Myriad, Alice, or other cases. Our ability to secure United States patent rights could be impaired if we cannot overcome such rejections, which could have a material adverse impact on our business. In addition, one or more of our issued United States patents could be challenged on the basis of the law and the standards set forth in Prometheus, Myriad, Alice, or other cases, which could have a material adverse impact on our business. Further, on July 30, 2015, in response to the public comment on the Interim Eligibility Guidance, the USPTO issued an update pertaining to the Interim Eligibility Guidance. The Updated Eligibility Guidance includes additional examples from the case law and is intended to assist examiners in applying the Interim Eligibility Guidance during the patent examination process.

If we fail to comply with our obligation in any of the agreements under which we license intellectual property rights from third parties or otherwise experience disruptions to our business relationships with our licensors, we could lose license rights that are important to our business.

Licensing of intellectual property rights is important to our business and involves complex legal, business and scientific issues.

Disputes may arise between us and our licensors regarding intellectual property rights subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- our right to sublicense intellectual property rights to third parties under collaborative development relationships; and
- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our product candidates, and what activities satisfy those diligence obligations.

While we would expect to exercise all rights and remedies available to us, including seeking to cure any breach by us, and otherwise seek to preserve our rights under the patents licensed to us, we may not be able to do so in a timely manner, at an acceptable cost or at all. Generally, the loss of any one of our current licenses, or any other license we may acquire in the future, could materially harm our business, prospects, financial condition and results of operations.

Confidentiality agreements with employees and others may not adequately prevent disclosure of our trade secrets and other proprietary information and may not adequately protect our intellectual property, which could limit our ability to compete.

Because we operate in the highly technical field of research and development, we rely in part on trade secret protection in order to protect our proprietary trade secrets and unpatented know-how. However, trade secrets are difficult to protect, and we cannot be certain that others will not develop the same or similar technologies on their own. Enforcing a claim that a party illegally obtained and is using our trade secrets or know-how is difficult, expensive and time consuming, and the outcome is unpredictable. In addition, courts outside the United States may be less willing to protect trade secrets or know-how. The failure to obtain or maintain trade secret protection could adversely affect our competitive position.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.

We have received confidential and proprietary information from third parties. In addition, we employ individuals who were previously employed at other healthcare companies. We may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise improperly used or disclosed confidential information of these third parties or our employees' former employers. Further, we may be subject to ownership disputes in the future arising, for example, from conflicting obligations of consultants or others who are involved in developing our products and services. We may also be subject to claims that former employees, consultants, independent contractors or other third parties have an ownership interest in our patents or other intellectual property. Litigation may be necessary to defend against these and other claims challenging our right to and use of confidential and proprietary information. If we fail in defending any such claims, in addition to paying monetary damages, we may lose our rights therein. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against these claims, litigation could result in substantial cost and be a distraction to our management and employees.

We rely in part on trademarks to distinguish our products and services from those of other entities. Trademarks may be opposed or cancelled, and we may be involved in lawsuits or other proceedings to protect or enforce our trademarks.

We rely on trademarks, in the United States and in certain foreign jurisdictions, to distinguish our products and services in the minds of our customers and our business partners from those of other entities. Third parties may challenge our pending trademark applications through opposition proceedings in the United States, or comparable proceedings in foreign jurisdictions, in which they seek to prevent registration of a mark. Our registered trademarks may be subject to cancellation proceedings in the United States, or comparable proceedings in foreign jurisdictions, in which a third party seeks to cancel an existing registration. To enforce our trademark rights, we may be involved in lawsuits or other proceedings which could be expensive, time-consuming and uncertain.

Our corporate name, NantHealth, and the names of our products and services have not been trademarked in each market where we operate and plan to operate. Our trademark applications for our products and services may not be allowed for registration, and our registered trademarks may not be maintained or enforced. During trademark registration proceedings, we may receive rejections, which we may be unable to overcome in our responses. If we do not secure registrations for our trademarks, we may encounter more difficulty in enforcing them against third parties than we otherwise would.

Risks related to reimbursement and government regulation

If we fail to comply with applicable health information privacy and security laws and other state and federal privacy and security laws, we may be subject to significant liabilities, reputational harm and other negative consequences, including decreasing the willingness of current and potential customers to work with us.

We are subject to data privacy and security regulation by both the federal government and the states in which we conduct our business. HIPAA established uniform federal standards for certain "covered entities," which include certain healthcare providers, healthcare clearinghouses, and health plans, governing the conduct of specified electronic healthcare transactions and protecting the security and privacy of protected health information, or PHI. The Health Information Technology for Economic and Clinical Health Act, or HITECH Act, which became effective on February 17, 2010, makes HIPAA's security standards directly applicable to "business associates," which are independent contractors or agents of covered entities that create, receive, maintain, or transmit PHI in connection with providing a service for or on behalf of a covered entity. The HITECH Act also increased the civil and criminal penalties that may be imposed against covered entities, business associates and certain other persons, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce HIPAA's requirements and seek attorney's fees and costs associated with pursuing federal civil actions.

A portion of the data that we obtain and handle for or on behalf of our clients is considered PHI, subject to HIPAA. We are also required to maintain similar business associate agreements with our subcontractors that have access to PHI of our customers in rendering services to us or on our behalf. Under HIPAA and our contractual agreements with our HIPAA-covered entity health plan customers, we are considered a "business associate" to those customers and are required to maintain the privacy and security of PHI in accordance with HIPAA and the terms of our business associate agreements with our clients, including by implementing HIPAA-required administrative, technical and physical safeguards. We have incurred, and will continue to incur, significant costs to establish and maintain these safeguards and, if additional safeguards are required to comply with HIPAA regulations or our clients' requirements, our costs could increase further, which would negatively affect our operating results. Furthermore, we cannot guarantee that such safeguards have been and will continue to be adequate. If we have failed, or fail in the future, to maintain adequate safeguards, or we or our agents or subcontractors use or disclose PHI in a manner prohibited or not permitted by HIPAA, our subcontractor business associate agreements, or our business associate agreements with our customers, or if the privacy or security of PHI that we obtain and handle is otherwise compromised, we could be subject to significant liabilities and consequences, including, without limitation:

- breach of our contractual obligations to clients, which may cause our clients to terminate their relationship with us and may result in potentially significant financial obligations to our clients;
- investigation by the federal and state regulatory authorities empowered to enforce HIPAA and other data privacy and security laws, which include the U.S. Department of Health and Human Services, or HHS, the Federal Trade Commission and state attorneys general, and the possible imposition of civil and criminal penalties;
- private litigation by individuals adversely affected by any misuse of their personal health information for which we are responsible; and
- negative publicity, which may decrease the willingness of current and potential future customers to work with us and negatively affect our sales and operating results.

Further, we publish statements to end users of our services that describe how we handle and protect personal information. If federal or state regulatory authorities or private litigants consider any portion of these statements to be untrue, we may be subject to claims of deceptive practices, which could lead to significant liabilities and consequences, including, without limitation, damage to our reputation and costs of responding to investigations, defending against litigation, settling claims and complying with regulatory or court orders.

Federal or state governmental authorities may impose additional data security standards or additional privacy or other restrictions on the collection, use, maintenance, transmission and other disclosures of health information. Legislation has been proposed at various times at both the federal and the state level that would limit, forbid or regulate the use or transmission of medical information outside of the United States. Such legislation, if adopted, may render our use of off-shore partners for work related to such data impracticable or substantially more expensive. Alternative processing of such information within the United States may involve substantial delay in implementation and increased cost.

We may be, or may become, subject to data protection laws and regulations, and our failure to comply with such laws and regulations could lead to government enforcement actions and significant penalties against us, and adversely impact our operating results.

The European Union, the EU, has adopted data protection laws and regulations which may apply to us in certain circumstances, or in the future. The laws impose significant compliance obligations on us and is commonly known as the GDPR, the General Data Protection Regulation. The GDPR, which is wide-ranging in scope and applicability, imposes several requirements relating to the consent of the individuals to whom the personal data relates, the information provided to the individuals, the security and confidentiality of the personal data, data breach notification and the use of third party processors in connection with the processing of personal data, including clinical trials. The GDPR also imposes strict rules on the transfer of personal data out of the EU to the U.S., provides an enforcement authority and imposes large penalties for noncompliance, including the potential for fines of up to €20 million or 4% of the annual global revenues of the noncompliant company, whichever is greater. The recent implementation of the GDPR has increased our responsibility and liability in relation to personal data that we process, including with respect to our employees in the European Union, and we may in the future be required to put in place additional mechanisms to ensure compliance with the GDPR, which could divert management's attention and increase our cost of doing business. In addition, other new regulation or legislative actions regarding data privacy and security (together with applicable industry standards) may increase our costs of doing business. In this regard, we expect that there will continue to be new proposed laws, regulations and industry standards relating to privacy and data protection in the United States, the EU and other jurisdictions, and we cannot determine the impact such future laws, regulations and standards may have on our business.

If we, including our employees, suppliers, distributors, independent contractors, and agents acting on our behalf, fail to comply with federal and state healthcare laws and regulations, including those governing submissions of false or fraudulent claims to government healthcare programs and financial relationships with healthcare providers, we may be subject to significant civil and criminal penalties and/or loss of eligibility to participate in government healthcare programs.

We are subject to certain federal and state laws and regulations designed to protect patients, governmental healthcare programs, and private health plans from fraudulent and abusive activities. These laws include anti-kickback restrictions and laws prohibiting the submission of false or fraudulent claims. These laws are complex and their application to our specific products, services and relationships may not be clear and may be applied to our business in ways that we do not anticipate. Federal and state regulatory and law enforcement authorities have recently increased enforcement activities with respect to Medicare and Medicaid fraud and abuse regulations and other reimbursement laws and rules. From time to time in the future, we may receive inquiries or subpoenas to produce documents in connection with such activities. We could be required to expend significant time and resources to comply with these requests, and the attention of our management team could be diverted to these efforts. Furthermore, third parties have in the past alleged, and may in the future allege that we have sought federal funding in a manner that may violate federal or state law. Though we dispute such allegations, if we are found to be in violation of any federal or state fraud and abuse laws, we could be subject to civil and criminal penalties, and we could be excluded from participating in federal and state healthcare programs such as Medicare and Medicaid. The occurrence of any of these events could significantly harm our business and financial condition.

Provisions in Title XI of the Social Security Act, commonly referred to as the federal Anti-Kickback Statute, prohibit the knowing and willful offer, payment, solicitation or receipt of remuneration, directly or indirectly, in cash or in kind, in return for or to reward the referral of patients or arranging for the referral of patients, or in return for the recommendation, arrangement, purchase, lease or order of items or services that are covered, in whole or in part, by a federal healthcare program such as Medicare or Medicaid. The definition of "remuneration" has been broadly interpreted to include anything of value such as gifts, discounts, rebates, waiver of payments or providing anything inconsistent with the fair market value. Many states have adopted similar prohibitions against kickbacks and other practices that are intended to induce referrals which are applicable to all patients regardless of whether the patient is covered under a governmental health program or private health plan. We attempt to scrutinize our business relationships and activities to comply with the federal Anti-Kickback Statute and similar laws and we attempt to structure our sales and group purchasing arrangements in a manner that is consistent with the requirements of applicable safe harbors to these laws. We cannot assure you, however, that our arrangements will be protected by such safe harbors or that such increased enforcement activities will not directly or indirectly have an adverse effect on our business, financial condition or results of operations. Any determination by a state or federal agency that any of our activities or those of our vendors or customers violate any of these laws could subject us to civil or criminal penalties, monetary fines, disgorgement, individual imprisonment, contractual damages, reputational harm, diminished profits and future earnings and curtailment of our operations, could require us to change or terminate some portions of operations or business, could disqualify us from providing services to healthcare providers doing business with government programs and, thus, could have an adverse effect on our business.

Our business is also subject to numerous federal and state laws, including without limitation the civil False Claims Act, that prohibits the knowing submission or "causing the submission" of false or fraudulent information or the failure to disclose information in connection with the submission and payment of claims for reimbursement to Medicare, Medicaid, federal healthcare programs or private health plans. Analogous state laws and regulations may apply to our arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payers. Additionally, HIPAA also imposes criminal and civil liability for, among other things, executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters.

These laws and regulations may change rapidly, and it is frequently unclear how they apply to our business. Errors created by our products or consulting services that relate to entry, formatting, preparation or transmission of claim or cost report information may be determined or alleged to be in violation of these laws and regulations. Any failure of our products or services to comply with these laws and regulations could result in substantial civil or criminal liability, monetary fines, disgorgement, individual imprisonment, contractual damages, reputational harm, diminished profits and future earnings and curtailment of our operations, could adversely affect demand for our one or more of our offerings, could invalidate all or portions of some of our customer contracts, could require us to change or terminate some portions of our business, could require us to refund portions of our services fees, could cause us to be disqualified from serving clients doing business with government payers and could have an adverse effect on our business.

Our activities are also subject to state and federal self-referral laws, including the federal Physician Self-referral Law, commonly known as the Stark Law, which prohibits physicians from referring Medicare or Medicaid patients to providers of "designated health services" with whom the physician or a member of the physician's immediate family has an ownership interest or compensation arrangement, unless a statutory or regulatory exception applies, and similar state equivalents that may apply regardless of payer. In addition, our activities may also implicate state laboratory licensure laws, as well as the corporate practice of medicine prohibition in certain states that maintain such laws or regulations. Our failure to abide by these state and federal laws could result in substantial fines and penalties.

Because of the far-reaching nature of these laws, we may be required to alter or discontinue one or more of our business practices to be in compliance with these laws. If we fail to adequately mitigate our operational risks or if we or our agents fail to comply with any of those regulations, laws and/or requirements, a range of actions could result, including, but not limited to, the termination of clinical trials, the failure to approve a product candidate, restrictions on our products or manufacturing processes, withdrawal of our products from the market, significant fines, exclusion from government healthcare programs or other sanctions or litigation. Such occurrences could have a material and adverse effect on our product sales, business and results of operations.

The scope and enforcement of these laws is uncertain and subject to rapid change in the current environment of healthcare reform, especially in light of the lack of applicable precedent and regulations. Federal or state regulatory authorities might challenge our current or future activities under these laws. Any such challenge could have a material adverse effect on our reputation, business, results of operations and financial condition. In addition, efforts to ensure that our business arrangements with third parties will comply with these laws and regulations and will involve substantial costs. Any state or federal regulatory review of us or the third parties with whom we contract, regardless of the outcome, would be costly and time-consuming. Further, it is not always possible to identify and deter misconduct by employees and third parties, and the precautions we take to detect and prevent misconduct may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with applicable healthcare laws. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant fines or other sanctions.

If commercial third-party payers or government payers fail to provide coverage or adequate reimbursement, or if there is a decrease in the amount of reimbursement for our sequencing and molecular analysis solutions, including GPS Cancer, or future products we develop, if any, our revenue and prospects for profitability would be harmed.

In both domestic and foreign markets, sales of our sequencing and molecular analysis solutions, including GPS Cancer, and other products and services we develop will depend, in large part, upon the availability of reimbursement from third-party payers. These third-party payers include government healthcare programs such as Medicare, managed care providers, private health insurers, and other organizations. In particular, we believe that obtaining a positive national coverage decision and favorable reimbursement rate from the Centers for Medicare and Medicaid Services, or CMS, for our sequencing and molecular analysis solutions, including GPS Cancer, will be a necessary element in achieving material commercial success. Physicians and patients may not order our sequencing and molecular analysis solutions unless commercial third-party payers and government payers pay for all, or a substantial portion, of the list price, and certain commercial third-party payers may not agree to reimburse our sequencing and molecular analysis solutions if CMS does not issue a positive coverage decision.

There is currently no national coverage decision that determines whether and how our sequencing and molecular analysis solutions, including GPS Cancer, are covered by Medicare. In the absence of a national coverage decision, local Medicare contractors, or MACs, that administer the Medicare program in various regions have some discretion in determining local coverage and therefore payment for tests. We do not currently receive any payment for our sequencing and molecular analysis solutions provided to patients covered by Medicare. If CMS or an applicable MAC does not issue a coverage decision with respect to our sequencing and molecular analysis solutions, or if CMS or an applicable MAC withdraws its coverage policies after reimbursement is obtained, reviews and adjusts the rate of reimbursement, or stops paying for our sequencing and molecular analysis solutions altogether, our revenue and results of operations would be adversely affected.

Commercial third-party payers and government payers are increasingly attempting to contain healthcare costs by demanding price discounts or rebates and limiting both coverage on which diagnostic products they will pay for and the amounts that they will pay for new molecular diagnostic products. Because of these cost-containment trends, commercial third-party payers and government payers that currently provide reimbursement for, or in the future cover, our sequencing and molecular analysis solutions, including GPS Cancer, may reduce, suspend, revoke, or discontinue payments or coverage at any time. Further, a payer's decision to provide coverage for a product or service does not imply that an adequate reimbursement rate will be approved. Additionally, one payer's determination to provide coverage does not assure that other payers will also provide coverage. Adequate third party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment.

As a result, there is significant uncertainty surrounding whether the use of products that incorporate new technology, such as our sequencing and molecular analysis solutions, including GPS Cancer, will be eligible for coverage by commercial third-party payers and government payers or, if eligible for coverage, what the reimbursement rates will be for those products. The fact that a diagnostic product has been approved for reimbursement in the past, for any particular indication or in any particular jurisdiction, does not guarantee that such a diagnostic product will remain approved for reimbursement or that similar or additional diagnostic products will be approved in the future. Reimbursement of NGS-based cancer products by commercial third-party payers and government payers may depend on a number of factors, including a payer's determination that products enabled by our molecular profiling solution are:

- not experimental or investigational;
- medically necessary;
- appropriate for the specific patient;
- cost-effective;
- supported by peer-reviewed publications;
- included in clinical practice guidelines; and
- supported by clinical utility studies.

As a result, our efforts to receive reimbursement on behalf of patients will take a substantial amount of time and may require the development of clinical data to demonstrate the clinical utility of our products and improve patient outcomes, or commercial third-party payers and government payers may never cover or provide adequate payment for our sequencing and molecular analysis solutions, including GPS Cancer, or future molecular profiling tools we license or develop. Our strategy to achieve broad reimbursement coverage is focused on demonstrating the clinical utility and economic benefits of our sequencing and molecular analysis solutions, engaging with thought leaders, oncologists and other caregivers, patient advocacy groups and other key oncology stakeholders and thereby increasing demand. For example, in January 2016, a large health plan announced that it would provide insurance coverage for GPS Cancer, representing the nation's first such insurance coverage for a whole genome/exome and RNA molecular diagnostic platform. Since that time, additional contracts with other large commercial payers have been signed, and efforts are now underway to pursue single case agreements which yield reimbursements from other non-contracted payers. Even in light of these developments, however, there is no assurance that we will continue to succeed in any of these areas or that, even if we do succeed, we will receive favorable reimbursement decisions. If adequate third-party reimbursement is unavailable we may not be able to maintain price levels sufficient to realize an appropriate return on investment in product development. Furthermore, if a commercial third-party payer or government payer denies coverage, it may be difficult for us to collect from the patient, and we may not be successful.

In addition, we are generally considered a "non-contracting provider" by commercial third-party payers because we generally have not entered into specific contracts to provide our molecular analysis services to their covered patients, and as a result we take on primary responsibility for obtaining reimbursement on behalf of patients. If we were to become a contracting provider with additional payers in the future, the amount of overall reimbursement we receive may decrease if we receive less revenue per product that is reimbursed at a contracted rate than at a non-contracted rate, which could have a negative impact on our revenue. Further, we may be unable to collect payments from patients beyond that which is paid by their coverage and will experience lost revenue as a result.

If we fail to comply with the way states and the FDA regulates tests that are developed, manufactured, validated and performed by laboratories like NantOmics, such failure could expose us to litigation or enforcement action by regulators, or result in delay or additional expense in offering our tests and tests that we may develop in the future.

Several states require that we and NantOmics hold laboratory licenses to test specimens from patients in those states. Other states may have similar requirements or may adopt similar requirements in the future. We may be subject to regulation in foreign jurisdictions as we seek to expand international distribution of our offerings, which may require review of our offerings in order to offer our services or may have other limitations such as prohibitions on the export of tissue necessary for us to perform our sequencing and molecular analysis services that may limit our ability to distribute outside of the United States.

In addition, NantOmics is subject to the Clinical Laboratory Improvement Amendments of 1988, or CLIA, a federal law that regulates clinical laboratories that perform testing on specimens derived from humans for the purpose of providing information for the diagnosis, prevention, or treatment of disease. CLIA regulations mandate specific standards in the areas of personnel qualifications, administration, and participation in proficiency testing, patient test management, quality control, quality assurance, and inspections. NantOmics has a current certificate of accreditation under CLIA to conduct our molecular sequencing and analyses through our accreditation by the College of American Pathologists, or CAP. To renew this certificate, NantOmics is subject to survey and inspection every two years. Moreover, CLIA inspectors may make random inspections of NantOmics' clinical reference laboratory.

Any sanction imposed under CLIA, its implementing regulations, or state or foreign laws or regulations governing licensure, or NantOmics' failure to renew a CLIA certificate, a state or foreign license, or accreditation, could have a material adverse effect on our business. Most CLIA deficiencies are not classified as "condition-level" deficiencies, and there are no adverse effects upon the laboratory operations as long as the deficiencies are corrected. Remediation of these deficiencies is a routine matter, with corrections occurring within several hours or weeks. More serious CLIA deficiencies could rise to the level of "condition-level" deficiencies, and CMS has the authority to impose a wide range of sanctions, including revocation of the CLIA certification along with a bar on the ownership or operation of a CLIA-certified laboratory by any owners or operators of the deficient laboratory. There is an administrative hearing procedure that can be pursued by the laboratory in the event of imposition of such sanctions, during which the sanctions are stayed, but the process can take a number of years to complete. If NantOmics was to lose its CLIA certification or CAP accreditation, we would not be able to offer our GPS Cancer solution services, which would result in material harm to our business and results of operations.

While the FDA has generally exercised its enforcement discretion for LDTs, the FDA has stated that it has a mandate to regulate in this field and that it intends to address LDT regulation using a risk-based, phased-in approach similar to the existing *in vitro* diagnostic framework.

More recently, the FDA has issued warning letters to genomics lab for illegally marketing genetic tests that claim to predict patients' responses to specific medications, noting that the FDA has not created a legal "carve-out" for LDTs and retains discretion to take action when appropriate, such as when certain genomic tests raise significant public health concerns. It is likely that the FDA will more actively regulate LDTs in the future, which will impose greater burdens on manufacturers to obtain the necessary premarket notification or approval from the FDA as well as comply with applicable post-market regulatory obligations.

NantHealth has obtained 510(k) clearance from FDA for its Omics Core Assay. To the extent FDA disagrees with our current position with respect to LDTs and our LDT services, FDA may require us or NantOmics to seek further clearance or approval for the sequencing services offered for clinical use. If the FDA requires us or NantOmics to seek clearance or approval to offer NantOmics' sequencing services for GPS Cancer or any of our future offerings for clinical use, we may not be able to obtain such approvals on a timely basis, or at all. Failure to comply with applicable regulatory requirements can increase our exposure to litigation government investigation, or result in enforcement action by the FDA, which may include any of the following sanctions: warning letters; fines; injunctions; civil or criminal penalties; recall or seizure of current or future products; operating restrictions; partial suspension or total shutdown of production; denial of applications; or challenges to clearances or approvals. We cannot provide any assurance that FDA regulation, including premarket review, will not be required for our GPS Cancer solution or any other molecular profiling solution we offer in the future. If premarket review is required, our business could be negatively impacted if we are required to stop selling our molecular profiling solution pending its clearance or approval or if such approval is delayed by new requirements. Changes in FDA's regulation, level of scrutiny applies to companies in the genomics testing space, and FDA's risk assessment of our products could increase our costs and subject us to additional regulatory requirements that may interrupt commercialization of our current and future solutions, or expose us to increased liability and litigation.

Healthcare policy changes, including legislation reforming the U.S. healthcare system, may have a material adverse effect on our financial condition, results of operations and cash flows.

In March 2010, the ACA was enacted in the United States, which made a number of substantial changes in the way healthcare is financed by both governmental and private insurers. Among other things, the ACA:

- requires each medical device manufacturer to pay an excise tax equal to 2.3% of the price for which such manufacturer sells its medical devices. This tax could have applied to GPS Cancer and some or all of our products which are in development. The excise tax was on a 4-year moratorium for calendar years 2016 through 2019. The Further Consolidated Appropriations Act, 2020, H.R. 1865 (Pub.L.116-94), signed into law on December 20, 2019, repealed the medical device excise tax previously imposed by Section 4191 of the Code for sales of medical devices after December 31, 2019.
- mandates a reduction in payments for clinical laboratory services paid under the Medicare Clinical Laboratory Fee Schedule of 1.75% for the years 2011 through 2015. In addition, a productivity adjustment is made to the fee schedule payment amount.
- creates initiatives to promote quality indicators in payment methodologies and the coordination and promotion of research on comparative clinical effectiveness of different technologies and procedures.

We cannot predict whether future healthcare initiatives will be implemented at the federal or state level, or how any future legislation or regulation may affect us. The taxes imposed by the new federal legislation and the expansion of government's role in the U.S. healthcare industry, as well as changes to the reimbursement amounts paid by payers for our current and future offerings or our medical procedure volumes, may reduce our profits and have a materially adverse effect on our business, financial condition, results of operations, and cash flows. Moreover, Congress has proposed on several occasions to impose a 20% coinsurance on patients for clinical laboratory tests reimbursed under the Medicare Clinical Laboratory Fee Schedule, which would require us to bill patients for these amounts. Because of the relatively low reimbursement for many clinical laboratory tests, in the event that Congress were to ever enact such legislation, the cost of billing and collecting for these tests would often exceed the amount actually received from the patient and effectively increase our costs of billing and collecting.

Furthermore, the current presidential administration and Congress are also expected to attempt substantial changes to the current health care laws and to adjust the executive branch's approach regarding implementation and enforcement regarding the ACA and other healthcare laws. During this administration, President Trump signed two Executive Orders and other directives designed to delay the implementation of certain provisions of the ACA or otherwise circumvent some of the requirements for health insurance mandated by the ACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the ACA. On December 14, 2018, a Texas U.S. District Court Judge ruled that the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress as part of the Tax Act. On December 18, 2019, the U.S. Court of Appeals for the 5th Circuit upheld the District Court ruling that the individual mandate was unconstitutional and remanded the case to the District Court to determine whether the remaining provisions of the ACA are invalid. In November 2020, the United States Supreme Court held oral arguments on the Fifth Circuit U.S. Court of Appeals decision. It is uncertain how the United States Supreme Court will rule on this case or how healthcare measures of the Biden administration will impact the ACA and our business. Litigation and legislation over the ACA are likely to continue, with unpredictable and uncertain results. But, any changes to the Affordable Care Act are likely to have an impact on our results of operations and may have a material adverse effect on our results of operations. We cannot predict what other healthcare programs and regulations will ultimately be implemented at the federal or state level or the effect of any future legislation or regulation in the United States may have on our business.

We are subject to U.S. and foreign anti-corruption and anti-money laundering laws with respect to our operations and non-compliance with such laws can subject us to criminal and/or civil liability and harm our business.

We are subject to the U.S. Foreign Corrupt Practices Act of 1977, as amended, or the FCPA, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, and possibly other state and national anti-bribery and anti-money laundering laws in countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, third-party intermediaries, joint venture partners and collaborators from authorizing, promising, offering, or providing, directly or indirectly, improper payments or benefits to recipients in the public or private sector. We currently engage in business and sales with government and state-owned hospitals outside of the United States. In addition, we engage third-party intermediaries to promote and sell our products and solutions abroad and/or to obtain necessary permits, licenses, and other regulatory approvals. We or our third-party intermediaries may have direct or indirect interactions with officials and employees of government agencies or state-owned or affiliated entities. We can be held liable for the corrupt or other illegal activities of these third-party intermediaries, our employees, representatives, contractors, partners, and agents, even if we do not explicitly authorize or have actual knowledge of such activities.

We have adopted an anti-corruption policy that, mandates compliance with the FCPA and other anti-corruption laws applicable to our business throughout the world. However, we cannot assure you that our employees and third-party intermediaries will comply with this policy or such anti-corruption laws. Noncompliance with anti-corruption and anti-money laundering laws could subject us to whistleblower complaints, investigations, sanctions, settlements, prosecution, other enforcement actions, disgorgement of profits, significant fines, damages, other civil and criminal penalties or injunctions, suspension and/or debarment from contracting with certain persons, the loss of export privileges, reputational harm, adverse media coverage, and other collateral consequences. If any subpoenas, investigations, or other enforcement actions are launched, or governmental or other sanctions are imposed, or if we do not prevail in any possible civil or criminal litigation, our business, financial condition and results of operations could be materially harmed. In addition, responding to any action will likely result in a materially significant diversion of management's attention and resources and significant defense and compliance costs and other professional fees. In certain cases, enforcement authorities may even cause us to appoint an independent compliance monitor which can result in added costs and administrative burdens.

We are subject to governmental export and import controls that could impair our ability to compete in international markets due to licensing requirements and subject us to liability if we are not in compliance with applicable laws.

Our products and solutions are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls. Exports of our products and solutions outside of the United States must be made in compliance with these laws and regulations. If we fail to comply with these laws and regulations, we and certain of our employees could be subject to substantial civil or criminal penalties, including the possible loss of export or import privileges, fines, which may be imposed on us and responsible employees or managers and, in extreme cases, the incarceration of responsible employees or managers.

In addition, changes in our products or solutions or changes in applicable export or import laws and regulations may create delays in the introduction, provision, or sale of our products and solutions in international markets, prevent customers from using our products and solutions or, in some cases, prevent the export or import of our products and solutions to certain countries, governments or persons altogether. Any limitation on our ability to export, provide, or sell our products and solutions could adversely affect our business, financial condition and results of operations.

We may be subject to fines, penalties or legal liability, if it is determined that we are practicing medicine without a license through our Eviti or molecular analysis solutions.

State laws prohibit the practice of medicine without a license. Our Eviti reports delivered to physicians provide information regarding FDA-approved therapies and clinical trials that oncologists may use in making treatment decisions for their patients, and our molecular analysis reports provide detailed DNA and RNA data about a patient and can make personalized therapy recommendations based on that data. We make members of our organization available to clinicians to discuss the information provided in the report. Our customer service representatives provide support to our clients, including assistance in interpreting the results of Eviti and our molecular analysis reports. A governmental authority or third party could allege that the identification of available therapies and clinical trials in our reports and the related customer service we provide constitute the practice of medicine. A state may seek to have us discontinue the inclusion of certain aspects of our reports or the related services we provide or subject us to fines, penalties, or licensure requirements. Any determination that we are practicing medicine without a license may result in significant liability to us and harm to our reputation and/or our Eviti and molecular analysis businesses.

Errors, misconduct, or illegal activity on the part of our clients may result in claims against us.

We rely on our clients, and we contractually obligate them, to provide us with accurate and appropriate data and directives for our actions. We rely upon our clients, as users of our solutions and systems infrastructure, for key activities to produce proper claims for reimbursement. Failure of clients to provide these data and directives or to perform these activities may result in claims against us that our reliance was misplaced.

Our services present the potential for embezzlement, identity theft or other similar illegal behavior by our employees or subcontractors with respect to third parties.

Our services also involve the use and disclosure of personal and business information that could be used to impersonate third parties or otherwise gain access to their data or funds. If any of our employees or subcontractors takes, converts or misuses such funds, documents or data, we could be liable for damages, and our business reputation could be damaged or destroyed.

Risks related to our convertible notes

Servicing our debt requires a significant amount of cash, and we may not have sufficient cash flow from our business to pay our substantial debt.

Our ability to make scheduled payments of the principal of, to pay interest on or to refinance our indebtedness, including the notes, depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Our business may not continue to generate cash flow from operations in the future sufficient to service our debt and make necessary capital expenditures. If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional equity capital on terms that may be onerous or highly dilutive. Our ability to refinance our indebtedness will depend on the capital markets and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations.

We may pay any interest make-whole payment on our notes by delivering shares of our common stock, which could result in significant dilution to our stockholders.

Beginning on or after the date that is one year after the last date of original issuance of the notes, we will in certain circumstances make an interest make-whole payment to a converting holder, payable in cash or shares of our common stock. If we elect, or are deemed to have elected, to pay any interest make-whole payment by delivering shares of our common stock, the number of shares of common stock a converting holder of notes will receive will be the number of shares that have a value equal to the amount of the interest make-whole payment to be paid to such holder in shares of our common stock, divided by the product of (x) 95% and (y) the simple average of the daily VWAP of our common stock for the 10 trading days ending on and including the trading day immediately preceding the conversion date, which could result in significant dilution to our stockholders.

The accounting method for convertible debt securities that may be settled in cash, such as the notes, could have a material effect on our reported financial results.

In May 2008, the Financial Accounting Standards Board, which we refer to as FASB, issued FASB Staff Position No. APB 14-1, Accounting for Convertible Debt Instruments That May Be Settled in Cash Upon Conversion (Including Partial Cash Settlement), which has subsequently been codified as Accounting Standards Codification 470-20, Debt with Conversion and Other Options, which we refer to as ASC 470-20. Under ASC 470-20, an entity must separately account for the liability and equity components of the convertible debt instruments (such as the notes) that may be settled entirely or partially in cash upon conversion in a manner that reflects the issuer's economic interest cost. The effect of ASC 470-20 on the accounting for the notes is that the equity component is required to be included in the additional paid-in capital section of stockholders' equity on our consolidated balance sheet, and the value of the equity component would be treated as original issue discount for purposes of accounting for the debt component of the notes. As a result, we will be required to record a greater amount of non-cash interest expense in current periods presented as a result of the amortization of the discounted carrying value of the notes to their face amount over the term of the notes. We will report lower net income in our financial results because ASC 470-20 will require interest to include both the current period's amortization of the debt discount and the instrument's coupon interest, which could adversely affect our reported or future financial results, the trading price of our common stock and the trading price of the notes.

In addition, under certain circumstances, convertible debt instruments (such as the notes) that may be settled entirely or partly in cash are currently accounted for utilizing the treasury stock method, the effect of which is that the shares issuable upon conversion of the notes are not included in the calculation of diluted earnings per share except to the extent that the conversion value of the notes exceeds their principal amount. Under the treasury stock method, for diluted earnings per share purposes, the transaction is accounted for as if the number of shares of common stock that would be necessary to settle such excess, if we elected to settle such excess in shares, are issued. We cannot be sure that the accounting standards in the future will continue to permit the use of the treasury stock method. If we are unable to use the treasury stock method in accounting for the shares issuable upon conversion of the notes, then our diluted earnings per share would be adversely affected.

Risks related to our common stock

Our Chairman and Chief Executive Officer, and entities affiliated with him, collectively own a significant majority of our common stock and will exercise significant influence over matters requiring stockholder approval, regardless of the wishes of other stockholders.

As of February 26, 2021, our Chairman and Chief Executive Officer, Dr. Patrick Soon-Shiong, and entities affiliated with him, collectively beneficially own approximately 59% of the voting power of our common stock. As a result, Dr. Patrick Soon-Shiong and his affiliates have significant influence over management and significant control over matters requiring stockholder approval, including the annual election of directors and significant corporate transactions, such as a merger or other sale of our company or assets, for the foreseeable future. This concentrated control will limit stockholders' ability to influence corporate matters and, as a result, we may take actions that our stockholders do not view as beneficial. As a result, the market price of our common stock could be adversely affected.

Dr. Patrick Soon-Shiong, our Chairman and Chief Executive Officer and our principal stockholder, has significant interests in other companies which may conflict with our interests.

Our Chairman and Chief Executive Officer, Dr. Patrick Soon-Shiong, is the founder of NantWorks. The various NantWorks companies are currently exploring opportunities in the immunotherapy, infectious disease and inflammatory disease fields. In particular, NantOmics provides us with its sequencing and molecular analysis solution for our GPS Cancer solution. NantWorks is the largest member of NantOmics, holding approximately 85% of the outstanding equity and approximately 99% of the outstanding voting equity as of December 31, 2020. As a result, they or other companies affiliated with Dr. Patrick Soon-Shiong may compete with us for business opportunities or, in the future, develop products that are competitive with ours. As a result Dr. Patrick Soon-Shiong's interests may not be aligned with the interests of our other stockholders, and he may from time to time be incentivized to take certain actions that benefit his other interests and that our other stockholders do not view as being in their interest as investors in our company. Moreover, even if they do not directly relate to us, actions taken by Dr. Patrick Soon-Shiong and the companies and charitable organizations with which he is involved could have a negative impact on our business.

Our certificate of incorporation contains a waiver of the corporate opportunities doctrine for NantWorks and its affiliates, which includes our Chairman and Chief Executive Officer, and therefore covered persons have no obligations to make opportunities available to us.

NantWorks, which is controlled by our Chairman and Chief Executive Officer, and its affiliates, beneficially owns approximately 59% of the voting power of our common stock as of February 26, 2021.

NantWorks and its affiliates engage in a broad spectrum of activities across the life science, biopharmaceutical, healthcare information technology and technology sectors. In the ordinary course of their business activities, NantWorks and its affiliates may from time to time acquire and hold interests in businesses that compete directly or indirectly with us. Our certificate of incorporation provides that none of NantWorks, any of its affiliates and all of their respective partners, principals, directors, officers, members, managers and/or employees, including any of the foregoing who serve as officers or directors of our company, to the fullest extent permissible by law, have any duty to bring business opportunities to our attention or to refrain from engaging, directly or indirectly, in the same business activities or similar business activities or lines of business in which we operate. NantWorks or its affiliates may also pursue acquisition opportunities that may be complementary to our business and, as a result, those acquisition opportunities may not be available to us. In addition, NantWorks may have an interest in pursuing acquisitions, divestitures and other transactions that, in its judgment, could enhance its investment, even though such transactions might involve risks to you.

We can provide no assurances that we will be able to maintain an active, liquid and orderly trading market for our common stock or what the market price of our common stock will be and as a result it may be difficult for you to sell your common stock.

Prior to our initial public offering in June 2016, there was no public market for our common stock. Although our common stock is listed on The Nasdaq Global Select Market, the market for our shares has demonstrated varying levels of trading activity. Further, because a significant amount of our common stock following our initial public offering is and is expected to continue to be held by our Chairman and Chief Executive Officer, Dr. Patrick Soon-Shiong, and entities affiliated with him, we have relatively small historic trading volumes. As a result of these and other factors, you may not be able to sell your common stock quickly or at or above the price you purchased your stock or at all. Further, an inactive market may also impair our ability to raise capital by selling additional common stock and may impair our ability to enter into strategic collaborations or acquire companies or products by using our common stock as consideration.

The trading price of our common stock has been and may continue to be volatile. This volatility may affect the price at which you could sell our common stock, the notes and any common stock you receive upon conversion of your notes.

The trading price of our common stock has been and may continue to be volatile and could be subject to wide fluctuations in response to various factors. The trading price of the notes and our common stock may fluctuate widely in response to various factors, some of which are beyond our control, including:

- announcements by us or our competitors of new products, significant contracts, commercial relationships or capital commitments and the timing of these introductions or announcements;
- adverse regulatory or reimbursement announcements;
- announcements by us or our competitors of significant acquisitions, strategic collaborations, joint ventures or capital commitments;
- the results of our efforts to develop additional offerings;

- our dependence on our customers, partners and collaborators;
- regulatory or legal developments in the United States or other countries;
- reimbursement decisions regarding our molecular profiling solutions, including GPS Cancer;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key management or other personnel;
- our ability to successfully commercialize our future products;
- the level of expenses related to any of our products;
- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts;
- actual or anticipated quarterly variations in our financial results or those of our competitors;
- any change to the composition of the board of directors or key personnel;
- sales of common stock by us or our stockholders in the future, as well as the overall trading volume of our common stock;
- changes in the structure of healthcare payment systems;
- commencement of, or our involvement in, litigation, including claims by our equity holders pertaining to our conversion from a Delaware limited liability company into a Delaware corporation or the pending class action litigation;
- general economic, industry and market conditions and other factors that may be unrelated to our operating performance or the operating performance of our competitors, including changes in market valuations of similar companies; and
- the other factors described in this “Risk Factors” section.

In addition, the stock market in general, and the Nasdaq and the healthcare industry in particular, have from time to time experienced volatility that often has been unrelated to the operating performance of the underlying companies. These broad market and industry fluctuations may adversely affect the market price of our common stock or the notes, regardless of our operating performance. In several recent situations where the market price of a stock has been volatile, holders of that stock have instituted securities class action litigation against the company that issued the stock. If any of our stockholders were to bring a lawsuit against us, the defense and disposition of the lawsuit could be costly and divert the time and attention of our management and would harm our business operating results or financial condition.

Our common stock may be delisted from The Nasdaq Global Select Market if we fail to comply with Nasdaq’s continued listing requirements.

If we were to fail to continue to meet Nasdaq’s continued listing requirements, which we have in the past, without a Nasdaq market listing, stockholders may have a difficult time getting a quote for the sale or purchase of our stock, the sale or purchase of our stock would likely be made more difficult and the trading volume and liquidity of our stock could decline. Delisting from Nasdaq could also result in negative publicity and could also make it more difficult for us to raise additional capital. The absence of such a listing may adversely affect the acceptance of our common stock as currency or the value accorded by other parties. Further, if we are delisted, we would also incur additional costs under state blue sky laws in connection with any sales of our securities. These requirements could severely limit the market liquidity of our common stock and the ability of our stockholders to sell our common stock in the secondary market. If our common stock is delisted by Nasdaq, our common stock may be eligible to trade on an over-the-counter quotation system, such as the OTCQB market, where an investor may find it more difficult to sell our stock or obtain accurate quotations as to the market value of our common stock. We cannot assure you that our common stock, if it were to be delisted from Nasdaq, will be listed on another national securities exchange or quoted on an over-the counter quotation system. If our common stock is delisted, it may come within the definition of “penny stock” as defined in the Securities Exchange Act of 1934, or the Exchange Act, and would be covered by Rule 15g-9 of the Exchange Act. That Rule imposes additional sales practice requirements on broker-dealers who sell securities to persons other than established customers and accredited investors. For transactions covered by Rule 15g-9, the broker-dealer must make a special suitability determination for the purchaser and receive the purchaser’s written agreement to the transaction prior to the sale. Consequently, Rule 15g-9, if it were to become applicable, would affect the ability or willingness of broker-dealers to sell our securities, and accordingly would affect the ability of stockholders to sell their securities in the public market. These additional procedures could also limit our ability to raise additional capital in the future.

We may pay any interest make-whole payment by delivering shares of our common stock, which could result in significant dilution to our stockholders and cause our stock price to fall.

On or after the date that is one year after the last date of original issuance of the notes, we will in certain circumstances make an interest make-whole payment, as described under Note 11. Convertible Notes to our Consolidated Financial Statements, to a converting holder, payable in cash or shares of our common stock. If we elect, or are deemed to have elected, to pay any interest make-whole payment by delivering shares of our common stock, the number of shares of common stock a converting holder of notes will receive will be the number of shares that have a value equal to the amount of the interest make-whole payment to be paid to such holder in shares of our common stock, divided by the product of (x) 95% and (y) the simple average of the daily VWAP of our common stock for the 10 trading days ending on and including the trading day immediately preceding the conversion date, which could result in significant dilution to our stockholders.

We have incurred and will continue to incur costs as a result of operating as a public company and our management has been and will be required to devote substantial time to public company compliance initiatives.

As a public company, listed in the United States, we have incurred and will continue to incur significant legal, accounting and other expenses due to our compliance with regulations and disclosure obligations applicable to us, including compliance with the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, as well as rules implemented by the SEC and the Nasdaq. The SEC and other regulators have continued to adopt new rules and regulations and make additional changes to existing regulations that require our compliance. In July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act, or the Dodd-Frank Act, was enacted. There are significant corporate governance and executive compensation related provisions in the Dodd-Frank Act that have required the SEC to adopt additional rules and regulations in these areas. Stockholder activism, the current political environment, and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact, in ways we cannot currently anticipate, the manner in which we operate our business. Our management and other personnel have and will continue to devote a substantial amount of time to these compliance programs and monitoring of public company reporting obligations and, as a result of the new corporate governance and executive compensation related rules, regulations, and guidelines prompted by the Dodd-Frank Act and further regulations and disclosure obligations expected in the future, we will likely need to devote additional time and costs to comply with such compliance programs and rules. These rules and regulations will cause us to incur significant legal and financial compliance costs and will make some activities more time-consuming and costly.

To continue to comply with the requirements of being a public company, we may need to undertake various activities, including implementing new internal controls and procedures and hiring new accounting or internal audit staff. The Sarbanes-Oxley Act requires that we maintain effective disclosure controls and procedures and internal control over financial reporting. We are continuing to develop and refine our disclosure controls and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we file with the SEC is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and that information required to be disclosed in reports under the Securities Exchange Act of 1934, or the Exchange Act, is accumulated and communicated to our principal executive and financial officers. Our current controls and any new controls that we develop may become inadequate and weaknesses in our internal control over financial reporting may be discovered in the future. For example, we previously identified a material weakness in our internal control over financial reporting related to our valuations of the Bookings Commitment liability and our related party equity method investment in NantOmics during the year ended December 31, 2018. The material weakness was remediated as of December 31, 2019. In addition, in connection with our preparation of the Consolidated and Combined Financial Statements for the year ended December 31, 2017, several control deficiencies relative to Information Technology general controls were not remediated prior to year-end. These deficiencies primarily related to change management controls over our general ledger and financial reporting system. We performed an assessment and determined that it did not rise to the level of a material weakness but did represent a significant deficiency in our internal control over financial reporting. A control deficiency is considered a significant deficiency if it represents a deficiency, or a combination of deficiencies, in internal control over financial reporting that is less severe than a material weakness, yet important enough to merit attention by those responsible for oversight of a company's financial reporting.

We cannot assure you that the measures we have taken, or will take, to remediate the material weakness and significant deficiencies will continue to be effective or that we will be successful in implementing them. Moreover, we cannot assure you that we have identified all significant deficiencies or material weaknesses or that we will not in the future have additional significant deficiencies or material weaknesses, in particular as we seek to transition to a more developed internal control environment and continue to grow as a company in terms of size, complexity of business and potentially in connection with future strategic transactions. Our independent registered public accounting firm has not evaluated any of the measures we have taken to address these significant deficiencies or the material weakness discussed above.

Any failure to develop or maintain effective controls could adversely affect the results of periodic management evaluations regarding the effectiveness of our internal control over financial reporting which we may be required to include in our periodic reports that we file with the SEC under Section 404 of the Sarbanes-Oxley Act, harm our operating results, cause us to fail to meet our reporting obligations, or result in a restatement of our prior period financial statements. In the event that we are not able to demonstrate compliance with the Sarbanes-Oxley Act, that our internal control over financial reporting is perceived as inadequate or that we are unable to produce timely or accurate financial statements, investors may lose confidence in our operating results and the price of our common stock could decline. In addition, if we are unable to continue to meet these requirements, we may not be able to remain listed on Nasdaq.

In addition, our independent registered public accounting firm did not perform an evaluation of our internal control over financial reporting during any period in accordance with the provisions of the Sarbanes-Oxley Act. Had our independent registered public accounting firm performed an evaluation of our internal control over financial reporting in accordance with the provisions of the Sarbanes-Oxley Act, additional control deficiencies amounting to significant deficiencies or material weaknesses may have been identified. Our independent registered public accounting firm may not be required to formally attest to the effectiveness of our internal control over financial reporting until the later of our second annual report or the first annual report required to be filed with the SEC following the date we are no longer an "emerging growth company" as defined in the JOBS Act, depending on whether we choose to rely on certain exemptions set forth in the JOBS Act. We cannot assure you that there will not be material weaknesses or significant deficiencies in our internal controls in the future. If we are unable to assert that our internal control over financial reporting is effective, we could lose investor confidence in the accuracy and completeness of our financial reports, which could have a material adverse effect on the price of our common stock.

New legislation that would change U.S. or foreign taxation of international business activities or other tax-reform policies, including the imposition of tax based on gross income, could seriously harm our business.

Reforming the taxation of international businesses has been a priority for politicians, and a wide variety of potential changes have been proposed. Some proposals, several of which have been enacted, impose incremental taxes on gross revenue, regardless of profitability. Any changes in the taxation of such activities may increase our worldwide effective tax rate and the amount of taxes we pay and seriously harm our business.

For example, the Tax Cuts and Jobs Act of 2017 ("Tax Act") was enacted on December 22, 2017 and significantly reformed the Code. The Tax Act lowered the U.S. federal corporate income tax rate, changed the utilization of net operating loss carryforwards arising in tax years beginning after December 31, 2017, allowed for the expensing of certain capital expenditures, and put into effect sweeping changes to U.S. taxation of international business activities. As a result, our net U.S. deferred tax assets and corresponding valuation allowances were revalued at the new U.S. corporate rate. We continue to examine the impact this tax reform legislation may have on our business. The impact of this tax reform on us and on holders of our common stock is uncertain and could seriously harm our business.

Our ability to use our net operating loss carryforwards to offset future taxable income may be subject to certain limitations.

In general, under Section 382 of the Code, a corporation that undergoes an "ownership change" is subject to annual limitations on its ability to use its pre-change net operating loss ("NOL") carryforwards or other tax attributes, to offset future taxable income or reduce taxes. We believe that we have undergone one or more ownership changes and accordingly, our ability to use our NOL carryforwards may be limited.

Additionally, the Tax Act, which was enacted on December 22, 2017, significantly reformed the Code, including changes to the rules governing NOL carryforwards. For NOL carryforwards arising in tax years beginning after December 31, 2017, the Tax Act limited a taxpayer's ability to utilize such carryforwards to 80% of taxable income. In addition, NOL carryforwards arising in tax years ending after December 31, 2017 can be carried forward indefinitely, but carryback is generally prohibited. NOL carryforwards generated by us before January 1, 2018 will not be subject to the taxable income limitation and will continue to have a twenty-year carryforward period. However, the changes in the carryforward and carryback periods as well as the new limitation on use of NOLs may significantly impact our ability to use NOL carryforwards generated after December 31, 2017, as well as the timing of any such use, and could seriously harm our business.

We do not anticipate paying any cash dividends on our common stock in the foreseeable future.

We do not currently intend to pay any cash dividends on our common stock in the foreseeable future. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. In addition, the terms of any future debt agreements may preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock may be investors' sole source of gain for the foreseeable future.

We are an “emerging growth company,” and a “smaller reporting company” and the reduced disclosure requirements applicable to emerging growth companies and smaller reporting companies could make our common stock less attractive to investors.

We are an “emerging growth company,” as defined in the JOBS Act, and may remain an “emerging growth company” for up to five years following the completion of our initial public offering or December 31, 2021. We would cease to be an emerging growth company upon the earliest of: (i) the last day of the fiscal year following the fifth anniversary of the completion of our initial public offering; (ii) the last day of the fiscal year during which we have annual gross revenue of at least \$1.07 billion; (iii) the date on which we are deemed to be a “large accelerated filer” under the Exchange Act (we will qualify as a large accelerated filer as of the first day of the first fiscal year after we have (a) more than \$700.0 million in outstanding common equity held by our non-affiliates and (b) been public for at least 12 months; the value of our outstanding common equity will be measured each year on the last business day of our second fiscal quarter); or (iv) the date on which we have, during the previous three-year period, issued more than \$1.0 billion in non-convertible debt securities. For as long as we remain an “emerging growth company,” we are permitted and intend to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not “emerging growth companies.” These exemptions include:

- being permitted to provide only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced “Management’s Discussion and Analysis of Financial Condition and Results of Operations” disclosure;
- not being required to comply with the auditor attestation requirements in the assessment of our internal control over financial reporting;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor’s report providing additional information about the audit and the financial statements;
- reduced disclosure obligations regarding executive compensation; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We have taken advantage of reduced reporting requirements in our public filings. In particular, we have not included all of the executive compensation related information that would be required if we were not an emerging growth company. In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards, delaying the adoption of these accounting standards until they would apply to private companies. We have irrevocably elected not to avail ourselves of this exemption and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies. Even after we no longer qualify as an emerging growth company, we may, under certain circumstances, still qualify as a “smaller reporting company,” which would allow us to take advantage of many of the same exemptions from disclosure requirements, including reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements. We cannot predict whether investors will find our common stock less attractive as a result of our reliance on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and the market price of our common stock may be reduced or may be more volatile.

Because we are relying on the exemptions from corporate governance requirements as a result of being a “controlled company” within the meaning of the Nasdaq listing standards, you do not have the same protections afforded to stockholders of companies that are subject to such requirements.

Our Chairman and Chief Executive Officer, Dr. Patrick Soon-Shiong, and entities affiliated with him, control a majority of our common stock. As a result, we are a “controlled company” within the meaning of Nasdaq listing standards. Under these rules, a company of which more than 50% of the voting power is held by an individual, a group or another company is a “controlled company” and may elect not to comply with certain Nasdaq corporate governance requirements, including (1) the requirement that a majority of the board of directors consist of independent directors and (2) the requirement that we have a nominating and corporate governance committee that is composed entirely of independent directors with a written charter addressing the committee’s purpose and responsibilities. We have elected to rely on certain of these exemptions, and do not have a nominating and corporate governance committee. Accordingly, you will not have the same protections afforded to stockholders of companies that are subject to all of the Nasdaq corporate governance requirements.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our share price and trading volume could decline.

The trading market for our common stock will depend on the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. There can be no assurance that analysts will cover us or provide favorable coverage. If one or more of the analysts who cover us downgrade our stock or change their opinion of our stock, our share price would likely decline. If one or more of these analysts cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

We are not subject to the provisions of Section 203 of the Delaware General Corporation Law, which could negatively affect your investment.

We elected in our amended and restated certificate of incorporation to not be subject to the provisions of Section 203 of the Delaware General Corporation Law, or Section 203. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. A “business combination” includes a merger, asset sale or other transaction resulting in a financial benefit to the interested stockholder. An “interested stockholder” is a person who, together with affiliates and associates, owns (or, in certain cases, within three years prior, did own) 15% or more of the corporation’s voting stock. Our decision not to be subject to Section 203 will allow, for example, Dr. Patrick Soon-Shiong, our Chairman and Chief Executive Officer (who, with entities affiliated with him, beneficially own approximately 59% of the voting power of our common stock, as of February 26, 2021), to transfer shares in excess of 15% of our voting stock to a third-party free of the restrictions imposed by Section 203. This may make us more vulnerable to takeovers that are completed without the approval of our board of directors and/or without giving us the ability to prohibit or delay such takeovers as effectively.

Some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our amended and restated certificate of incorporation and amended and restated bylaws, as well as provisions of Delaware law, could make it more difficult for a third party to acquire us or increase the cost of acquiring us, even if doing so would benefit our stockholders. These provisions include:

- a requirement that special meetings of stockholders be called only by the board of directors, the president or the chief executive officer;
- advance notice requirements for stockholder proposals and nominations for election to our board of directors; and
- the authority of the board of directors to issue preferred stock on terms determined by the board of directors without stockholder approval and which preferred stock may include rights superior to the rights of the holders of common stock.

These anti-takeover provisions and other provisions in our amended and restated certificate of incorporation and amended and restated bylaws could make it more difficult for stockholders or potential acquirers to obtain control of our board of directors or initiate actions that are opposed by the then-current board of directors and could also delay or impede a merger, tender offer or proxy contest involving our company. These provisions could also discourage proxy contests and make it more difficult for you and other stockholders to elect directors of your choosing or cause us to take other corporate actions you desire. Any delay or prevention of a change of control transaction or changes in our board of directors could cause the market price of our common stock to decline.

Claims for indemnification by our directors and officers may reduce our available funds to satisfy successful third-party claims against us and may reduce the amount of money available to us.

Our amended and restated certificate of incorporation and amended and restated bylaws provide that we will indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law. In addition, as permitted by Section 145 of the Delaware General Corporation Law, our amended and restated bylaws and our indemnification agreements that we have entered into with our directors and officers provide that:

- We will indemnify our directors and officers for serving us in those capacities or for serving other business enterprises at our request, to the fullest extent permitted by Delaware law. Delaware law provides that a corporation may indemnify such person if such person acted in good faith and in a manner such person reasonably believed to be in or not

opposed to the best interests of the registrant and, with respect to any criminal proceeding, had no reasonable cause to believe such person's conduct was unlawful.

- We may, in our discretion, indemnify employees and agents in those circumstances where indemnification is permitted by applicable law.
- We are required to advance expenses, as incurred, to our directors and officers in connection with defending a proceeding, except that such directors or officers shall undertake to repay such advances if it is ultimately determined that such person is not entitled to indemnification.
- We will not be obligated pursuant to our amended and restated bylaws to indemnify a person with respect to proceedings initiated by that person against us or our other indemnitees, except with respect to proceedings authorized by our board of directors or brought to enforce a right to indemnification.
- The rights conferred in our amended and restated bylaws are not exclusive, and we are authorized to enter into indemnification agreements with our directors, officers, employees and agents and to obtain insurance to indemnify such persons.
- We may not retroactively amend our bylaw provisions to reduce our indemnification obligations to directors, officers, employees and agents.

To the extent that a claim for indemnification is brought by any of our directors or officers, it would reduce the amount of funds available for use in our business.

Our amended and restated certificate of incorporation designates the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or other employees.

Our amended and restated certificate of incorporation provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws, or (iv) any action asserting a claim against us governed by the internal affairs doctrine. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and consented to the provisions of our amended and restated certificate of incorporation described above. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees. Alternatively, if a court were to find these provisions of our amended and restated certificate of incorporation inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business, financial condition or results of operations.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our corporate headquarters are located in Culver City, California and we also have offices in El Segundo, California, where we occupy facilities totaling approximately 8,000 square feet on a month-to-month basis pursuant to a Shared Services Agreement with NantWorks. We use these facilities for administration, sales and marketing, research and development, engineering, client support, and professional services. In addition, we have three U.S. locations across three states and two international locations. Our key facilities include the following:

- United States
 - Boston, Massachusetts
 - Philadelphia, Pennsylvania
 - Phoenix, Arizona
- International
 - Belfast, Northern Ireland
 - Ottawa, Canada

We believe that our facilities are adequate to meet our needs in the near term, and that, if needed, suitable additional space will be available to accommodate any expansion of our operations.

The following table outlines our facilities location, square footage, and use:

City	State	Country	Sq ft	Type	Business Nature/Use
Boston	MA	USA	31,752	Lease	Administrative, sales, client support, R&D, engineering, professional services
Belfast	NI	UK	15,500	Lease	R&D, engineering, administrative
Phoenix	AZ	USA	4,865	Lease	Data center
Philadelphia	PA	USA	14,183	Lease	Administrative, sales, client support, R&D, engineering, professional services
Ottawa	ON	CA	4,202	Lease	Administrative, sales, client support, R&D, engineering, professional services
			70,502		

Item 3. Legal Proceedings

We are, from time to time, subject to claims and litigation that arise in the ordinary course of our business. Except as discussed in Note 14 to the accompanying Consolidated Financial Statements, in the opinion of management, the ultimate outcome of proceedings of which management is aware, even if adverse to us, would not have a material adverse effect on our consolidated financial condition or results of operations. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors. See Note 14 to the accompanying Consolidated Financial Statements for a discussion of our legal proceedings.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information for Common Stock

Our common stock trades on the Nasdaq Global Select Market under the symbol "NH".

Holders of Record

As of February 26, 2021, we had approximately 109 holders of record of our common stock. We believe the actual number of stockholders is greater than the number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees. This number of holders of record also does not include stockholders whose shares may be held in trust or by other entities.

Dividend Policy

No cash dividends were declared for our common stock during the fiscal years ended in 2020 and 2019. We currently intend to retain all available funds and any future earnings for use in the operation of our business and do not anticipate paying any dividends on our common stock in the foreseeable future. Any future determination to declare dividends will be made at the discretion of our board of directors and will depend on, among other factors, our financial condition, operating results, capital requirements, general business conditions and other factors that our board of directors may deem relevant.

Recent Sales of Unregistered Securities

None.

Repurchases of Equity Securities by the Issuer

We did not make any stock repurchases during the twelve months ended December 31, 2020.

Item 6. Selected Financial Data

Omitted, as not required for a smaller reporting company.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following is a discussion and analysis of our financial condition and the results of operations as of and for the periods presented below. The following discussion and analysis should be read in conjunction with the "Consolidated Financial Statements" and notes thereto included elsewhere in this Annual Report on Form 10-K, or Annual Report. This discussion contains forward-looking statements that are based on the beliefs, assumptions, and information currently available to our management, and are subject to known and unknown risks, uncertainties, and other factors that may cause our actual results to differ materially from those expressed or implied by such forward-looking statements. These risks, uncertainties, and other factors include, among others, those described in greater detail elsewhere in this Annual Report, particularly in Item 1A, "Risk Factors."

Overview

NantHealth, Inc. ("NantHealth" or the "Company") provides enterprise solutions that help businesses transform complex data into actionable insights. By offering efficient ways to move, interpret, and visualize complex and highly sensitive information, we help our customers in healthcare, life sciences, logistics, telecommunications, and other industries, to automate, understand, and act on data while keeping it secure and scalable.

NantHealth's product portfolio comprises the latest technology in payer/provider collaboration platforms for real-time coverage decision support (NaviNet and Eviti), molecular analysis services (GPS Cancer and Omics Core), and data solutions that include multi-data analysis, reporting and professional services offerings (Quadris). In addition, The OpenNMS Group, Inc. ("OpenNMS"), a NantHealth subsidiary, helps businesses monitor and manage network health and performance. Altogether, we generally derive revenue from SaaS subscription fees, support services, professional services, molecular analysis services, and revenue sharing through collaborations with complementary businesses.

We market certain of our solutions as a comprehensive integrated solution that includes our clinical decision support, payer engagement solutions, molecular sequencing and analysis services, data analysis and network monitoring and management. We also market our clinical decision support, payer engagement solutions, molecular sequencing and analysis services, data analysis and network monitoring and management on a stand-alone basis. To accelerate our commercial growth and enhance our competitive advantage, we intend to continue to:

- introduce new marketing, education and engagement efforts and foster relationships across the health care community to drive adoption of NantHealth products and services;
- strengthen our commercial organization to increase our NantHealth solutions client base and to broaden usage of our solutions by existing clients;
- develop new features and functionality for NantHealth solutions to address the needs of current and future healthcare provider and payer, self-insured employer and biopharmaceutical company clients, as well as logistics, telecommunications and other clients through OpenNMS;
- pursue reimbursement of molecular sequencing and analysis services from regional and national third-party payers and government payers; and
- publish scientific and medical advances.

The acquisition of OpenNMS, an enterprise-grade open-source network management company, expands and diversifies NantHealth's software portfolio and service offerings, adding AI technologies, and enhancing cloud and SaaS capabilities. We believe OpenNMS will provide NantHealth customers with a new set of services to maintain reliable network connections for critical data flows that enable patient data collaboration and decision making at the point of care.

Since our inception, we have devoted substantially all our resources to the development and commercialization of NantHealth solutions, as well as the commercial launch and expansion of our molecular sequencing and analysis business. To complement our internal growth and expertise, we have made several strategic acquisitions of companies, products and technologies. We have incurred significant losses since our inception and, as of December 31, 2020, our accumulated deficit was approximately \$1.0 billion. We expect to continue to incur operating losses over the near term as we expand our commercial operations, invest further in NantHealth solutions, and support adoption of our molecular sequencing and analysis solutions (including GPS Cancer).

We plan to (i) continue investing in our infrastructure, including but not limited to solution development, sales and marketing, implementation and support, (ii) continue efforts to make infrastructure investments within an overall context of maintaining reasonable expense discipline, (iii) add new clients through maintaining and expanding sales, marketing and solution development activities, (iv) expand our relationships with existing clients through delivery of add-on and complementary solutions and services and (v) continue our commitment of service in support of our client satisfaction programs.

2020 Acquisition of The OpenNMS Group, Inc.

On July 22, 2020, we entered into an assignment agreement (the "Assignment Agreement") with Cambridge to acquire approximately 91% of OpenNMS for \$5.6 million in cash. Contemporaneously with the closing of the Assignment Agreement, OpenNMS issued call options to the Company consisting of, when exercised, cash payment of \$0.3 million and issuance of 56,769 shares of the Company's common stock in exchange for the 9% of the shares of OpenNMS common stock held by the remaining shareholders. These call options expired unexercised on September 30, 2020.

COVID-19 Pandemic

In March 2020, the World Health Organization declared the novel coronavirus (COVID-19) a pandemic. In the same month, the President of the United States declared a State of National Emergency due to the COVID-19 outbreak. Many jurisdictions, particularly in North America (including the United States), Europe and Asia, as well as U.S. states in which we operate, including California, have adopted or are considering laws, rules, regulations or decrees intended to address the COVID-19 outbreak, including implementing travel restrictions, closing non-essential businesses and/or restricting daily activities. In addition, many communities have limited, and are considering to further limit, social mobility and gathering. To date, there has been no material adverse impact to our business from the COVID-19 pandemic. Given the unprecedented and evolving nature of the pandemic, the future impact of these changes and potential changes on the Company and our contractors, consultants, customers, resellers and partners is unknown at this time.

However, in light of the uncertainties regarding economic, business, social, health and geopolitical conditions, our revenues, earnings, liquidity, and cash flows could be adversely affected, whether on an annual or quarterly basis. Continued impacts of the COVID-19 pandemic could materially adversely affect our current and long-term account receivable collectibility, as our negatively impacted customers from the pandemic may request temporary relief, delay, or not make scheduled payments. In addition, the deployment of our solutions may represent a large portion of our customers' investments in software technology. Decisions to make such an investment are impacted by the economic environment in which the customers operate. Uncertain global geopolitical, economic and health conditions and the lack of visibility or the lack of financial resources may cause some customers to reduce, postpone or terminate their investments, or to reduce or not renew ongoing paid services, adversely impacting our revenues or timing of revenue. Health conditions in some geographic areas where our customers operate could impact the economic situation of those areas. These conditions, including the COVID-19 pandemic, may present risks for health and limit the ability to travel for our employees, which could further lengthen our sales cycle and delay revenue and cash flows in the near-term.

For information on the CARES Act, refer to Note 15 to the accompanying Consolidated Financial Statements.

2020 Sale of the Connected Care Business

On January 13, 2020, we entered into an asset purchase agreement (the "Purchase Agreement") with Masimo Corporation ("Masimo"), VCCB Holdings, Inc., a wholly owned subsidiary of Masimo (collectively with Masimo, the "Purchaser"), and, solely with respect to certain provisions of the Purchase Agreement, NantWorks, LLC, an affiliate of ours. Pursuant to the Purchase Agreement, we agreed to sell to the Purchaser certain of our assets related to our "Connected Care" business, including the products known as DCX (formerly DeviceConX), VCX (formerly VitalsConX), HBox and Shuttle Cable (collectively, the "Connected Care Business"). On February 3, 2020, we completed the sale of the Connected Care Business for \$47.3 million of cash consideration in exchange for assets primarily related to the Connected Care Business (as defined under the terms of the Purchase Agreement). The cash consideration is subject to adjustment based upon the final amount of working capital as of the closing date.

The sale of the Connected Care Business qualified as a discontinued operation because it comprised operations and cash flows that could be distinguished, operationally and for financial reporting purposes, from the rest of the Company. The disposal of the Connected Care Business represented a strategic shift in our operations as the sale enables us to focus on molecular analysis, clinical decision support, payer engagement, and data analytics.

Evolution of GPS Cancer Test Platform

NantHealth and NantOmics (our technology partner for the GPS Cancer test) are continually taking steps to optimize the utility and value of our tests for physicians and their patients. To this end, we have leveraged our deep experience with RNA sequencing, bioinformatics and statistics to expand the clinical utility of the GPS Cancer test, while also streamlining and improving our lab workflow by consolidating to next-generation sequencing as our sole testing platform. A fundamental result of this work is that the key cancer treatment biomarkers previously assessed using our proprietary quantitative proteomics platform are, beginning in April 2018, now assessed solely via RNA sequencing, gene expression and statistical analysis. This change is based on the established clinical and scientific utility of tumor RNA sequencing. The tumor RNA transcriptome reveals gene and somatic variant expression, identifies gene fusions and validates their expression, and determines the relevance of gene copy number alterations. GPS Cancer currently assesses RNA expression of over 19,000 genes in a tumor sample and we have shown significant concordance between our RNA and proteomics expression platforms. We believe this change will result in operational efficiencies, an improved cost structure and more rapid transfer of scientific advancements in expression analysis to our clinical report.

In November of 2019, FDA awarded 510(k) clearance to Omics Core, which is the technical foundation of the DNA component of the GPS Cancer test. In May 2020, MoDx provided a positive coverage determination for Omics Core creating a path for Medicare reimbursement for a portion of the GPS Cancer test.

2017 Asset Purchase Agreement with Allscripts

On August 3, 2017, we entered into an asset purchase agreement, which we refer to as the "APA," with Allscripts Healthcare Solutions, Inc., or "Allscripts", pursuant to which we agreed to sell to Allscripts substantially all of the assets of our provider/patient engagement solutions business, including our FusionFX solution and components of its NantOS software connectivity solutions (the "Business"). On August 25, 2017, we and Allscripts completed the sale pursuant to the APA.

Allscripts conveyed to us 15,000,000 shares of our common stock at par value of \$0.0001 per share that were previously owned by Allscripts as consideration for the transaction. We retired the shares of stock. Allscripts also paid \$1.7 million of cash consideration to us as an estimated working capital payment, and we recorded a receivable of \$1.0 million related to final working capital adjustments. We are also responsible for paying Allscripts for fulfilling certain customer service obligations of the business post-closing.

Concurrent with the closing and as contemplated by the APA, we and Allscripts modified the amended and restated mutual license and reseller agreement dated June 26, 2015, which was further amended on December 30, 2017, such that, among other things, the Company committed to deliver a minimum of \$95.0 million of total bookings over a ten-year period ("Bookings Commitment") from referral transactions and sales of certain Allscripts products under this agreement (see Note 12 of the Consolidated Financial Statements). We also agreed that Allscripts shall receive at least \$0.5 million per year in payments from bookings (the "Annual Minimum Commitment"). If the total payments received by Allscripts from bookings during such period are less than the Annual Minimum Commitment, we shall pay to Allscripts the difference between the Annual Minimum Commitment and the total amount received by Allscripts from bookings during such period. In the event of a Bookings Commitment shortfall at the end of the ten-year period, we may be obligated to pay 70% of the shortfall, subject to certain credits. We will earn 30% commission from Allscripts on each software referral transaction that results in a booking with Allscripts. We account for the Bookings Commitment at its estimated fair value over the life of the agreement. The total estimated liability was \$33.9 million and \$22.7 million as of December 31, 2020 and 2019, respectively.

Non-GAAP Net Loss from Continuing Operations and Non-GAAP Net Loss Per Share from Continuing Operations

Adjusted net loss from continuing operations and adjusted net loss per share from continuing operations are financial measures that are not prepared in conformity with United States generally accepted accounting principles (U.S. GAAP). Our management believes that the presentation of Non-GAAP financial measures provides useful supplementary information regarding operational performance, because it enhances an investor's overall understanding of the financial results for our core business. Additionally, it provides a basis for the comparison of the financial results for our core business between current, past and future periods. Other companies may define these measures in different ways. Non-GAAP financial measures should be considered only as a supplement to, and not as a substitute for or as a superior measure to, financial measures prepared in accordance with U.S. GAAP.

Non-GAAP net loss from continuing operations excludes the effects of (1) loss from equity method investments including impairment losses, (2) stock-based compensation expense, (3) change in fair value of derivatives liability, (4) change in fair value of the Bookings Commitment, (5) noncash interest expense related to convertible notes, (6) intangible amortization, (7) impairment of intangible assets, including internal-use software, (8) loss on sale of business, (9) securities litigation costs, and (10) the impacts of certain income tax benefits and provisions from noncash activity.

The following table reconciles Net loss from continuing operations attributable to NantHealth to Net loss from continuing operations attributable to NantHealth - Non-GAAP for the years ended December 31, 2020 and 2019:

(Dollars in thousands, except per share amounts)

	Year Ended December 31,	
	2020	2019
Net loss from continuing operations attributable to NantHealth	\$ (88,319)	\$ (65,381)
Adjustments to GAAP net loss from continuing operations attributable to NantHealth:		
Loss from related party equity method investment	31,702	8,317
Stock-based compensation expense from continuing operations	2,722	2,842
Change in fair value of derivatives liability	4	—
Change in fair value of Bookings Commitment	11,168	5,036
Noncash interest expense related to convertible notes	6,477	5,702
Intangible amortization from continuing operations	8,395	8,878
Impairment of intangible assets, including internal-use software	729	3,977
Loss on sale of business	—	582
Securities litigation costs	(103)	528
Tax provision (benefit) resulting from certain noncash tax items	228	(570)
Total adjustments to GAAP net loss from continuing operations attributable to NantHealth	61,322	35,292
Net loss from continuing operations attributable to NantHealth - Non-GAAP	\$ (26,997)	\$ (30,089)
Weighted average basic common shares outstanding	110,954,858	110,351,638
Net loss per common share from continuing operations attributable to NantHealth - Non-GAAP	\$ (0.24)	\$ (0.27)

The following table reconciles Net loss per common share from continuing operations attributable to NantHealth to Net loss per common share from continuing operations attributable to NantHealth - Non-GAAP for the years ended December 31, 2020 and 2019:

	Year Ended December 31,	
	2020	2019
Net loss per common share from continuing operations attributable to NantHealth	\$ (0.80)	\$ (0.59)
Adjustments to GAAP net loss per common share from continuing operations attributable to NantHealth:		
Loss from related party equity method investment	0.29	0.07
Stock-based compensation expense from continuing operations	0.02	0.03
Change in fair value of derivatives liability	—	—
Change in fair value of Bookings Commitment	0.10	0.05
Noncash interest expense related to convertible notes	0.06	0.05
Intangible amortization from continuing operations	0.08	0.08
Impairment of intangible assets, including internal-use software	0.01	0.04
Loss on sale of business	—	0.01
Securities litigation costs	—	—
Tax provision (benefit) resulting from certain noncash tax items	—	(0.01)
Total adjustments to GAAP net loss per common share from continuing operations attributable to NantHealth	0.56	0.32
Net loss per common share from continuing operations attributable to NantHealth - Non-GAAP	\$ (0.24)	\$ (0.27)

Components of Our Results of Operations

Revenue

We generate our revenue from the sale of software-as-a-service ("SaaS"), maintenance, and services. Our systems infrastructure and platforms support the delivery of both personalized comprehensive sequencing and molecular analysis, the implementation of value-based care models across the healthcare continuum, and maintenance of reliable network connections. We generate revenue from the following sources:

Software-as-a-service related - SaaS related revenue is generated from our clients' access to and usage of our hosted software solutions on a subscription basis for a specified contract term. In SaaS arrangements, the customer cannot take possession of the software during the term of the contract and generally only has the right to access and use the software and receive any software upgrades published during the subscription period. Solutions sold under a SaaS model include our Eviti platform solutions and NaviNet.

Maintenance - Maintenance revenue includes technical support or maintenance on OpenNMS software during the contract term. Our networking monitoring solutions typically consist of a term-based subscription to the OpenNMS software license and maintenance, which entitle customers to unspecified software updates and upgrades on a when-and-if-available basis. Revenue is recognized over the maintenance or support term.

Professional services - Professional services revenue is generated from consulting services to help customers install, integrate and optimize OpenNMS, sponsored development, and training to assist customers deploy and use OpenNMS solutions. Sponsored development relates to professional services to build customer specific functionality, features, and enhancements into the OpenNMS open source platform. Typically, revenue is recognized over time using direct labor hours as a measure of progress.

Sequencing and molecular analysis - Sequencing and molecular analysis revenue is generated by providing customers with reports of the results of performing sequencing and molecular analysis of DNA and RNA (and previously proteomic testing) under our reseller agreement with NantOmics, and from blood samples via our liquid/blood-based tumor profiling platform through our subsidiary, NantHealth Labs, Inc. Revenue is recognized at a point in time, when reports of results are transferred to the ordering physician or institution, or on a cash basis; or ratably over time for the period of a stand-ready obligation to provide blood-based tumor profiling services.

Home health care services - Home health care services revenue includes revenue related to nursing and therapy services provided to patients in a home care setting. On June 7, 2019, we completed the divestiture of our home health care services business. See Note 4 to the accompanying Consolidated Financial Statements.

Cost of Revenue

Cost of revenue includes associated salaries and fringe benefits, stock-based compensation, consultant costs, direct reimbursable travel expenses, depreciation related to software developed for internal use, depreciation related to lab equipment, and other direct engagement costs associated with the design, development, sale and installation of systems, including system support and maintenance services for customers. System support includes ongoing customer assistance for software updates and upgrades, installation, training and functionality. All service costs, except development of internal use software and deferred implementation costs, are expensed when incurred. Amortization of deferred implementation costs are also included in cost of revenue. Cost of revenue associated with each of our revenue sources consists of the following types of costs:

Software-as-a-service related - SaaS related cost of revenue includes personnel-related costs, amortization of deferred implementation costs, amortization of internal-use software, and other direct costs associated with the delivery and hosting of our subscription services.

Maintenance - Maintenance cost of revenue includes personnel-related costs, amortization of internal-use software, and other direct costs associated with the ongoing support or maintenance provided to our customers.

Professional services - Professional services cost of revenue include personnel-related costs and other direct costs associated with consulting, sponsored development, and training provided to our customers.

Sequencing and molecular analysis - Sequencing and molecular analysis cost of revenue includes personnel-related costs associated with fulfillment of these services, including those of our subsidiary, NantHealth Labs, and amounts due to NantOmics under the reseller agreement for the sequencing and molecular analysis of DNA and RNA (and previously proteomic results). It also includes amortization of internal-use software and depreciation of lab equipment.

Home health care services - Home health care services cost of revenue includes direct expenses relating to our nursing and therapy services provided to patients in a home care setting. On June 7, 2019, we completed the divestiture of our home health care services business. See Note 4 to the accompanying Consolidated Financial Statements.

We plan to continue to expand our capacity to support our growth, which will result in higher cost of revenue in absolute dollars. We expect cost of revenue to decrease as a percentage of revenue over time as we expand NantHealth solutions and realize economies of scale.

Operating Expenses

Our operating expenses consist of selling, general and administrative, research and development, amortization of acquisition-related assets, and impairment of intangible assets, including internal-use software.

Selling, general and administrative

Selling, general and administrative expense consists primarily of personnel-related expenses for our sales and marketing, finance, legal, human resources, and administrative associates, stock-based compensation, advertising and marketing promotions of NantHealth solutions, and corporate shared services fees from NantWorks. This includes amortization of deferred commission costs. It also includes trade show and event costs, sponsorship costs, point of purchase display expenses and related amortization as well as legal costs, facility costs, consulting and professional fees, insurance and other corporate and administrative costs.

We continue to review our other selling, general and administrative investments and expect to drive cost savings through greater efficiencies and synergies across our company. Additionally, we expect to continue to incur additional costs for legal, accounting, insurance, investor relations and other costs associated with operating as a public company including costs associated with other regulations governing public companies as well as increased costs for directors' and officers' liability insurance and an enhanced investor relations function. However, we expect our selling, general and administrative expense to decrease as a percentage of revenue over the long term as our revenue increases and we realize economies of scale.

Research and development

Research and development expenses consist primarily of personnel-related costs for associates working on development of solutions, including salaries, benefits and stock-based compensation. Also included are non-personnel costs such as consulting and professional fees to third-party development resources.

Substantially all our research and development expenses are related to developing new software solutions and improving our existing software solutions.

We expect our research and development expenses to continue to increase in absolute dollars and as a percentage of revenue as we continue to make investments in developing new solutions and enhancing the functionality of our existing solutions. However, we expect our research and development expenses to decrease as a percentage of revenue over the long term as we realize economies of scale from our developed technology.

Amortization of acquisition-related assets

Amortization of acquisition-related assets consists of noncash amortization expense related to our non-revenue generating technology as well as amortization expense that we recognize on intangible assets that we acquired through our investments.

Impairment of intangible assets, including internal-use software

Impairment of intangible assets consists of the impairment loss from the NantHealth Labs definite-lived intangible assets and certain internal-use software.

Interest Expense, Net

Interest expense, net primarily consists of interest expense associated with our outstanding borrowings, including coupon interest expense, amortization of debt discounts and amortization of deferred financing offering cost, offset by interest income earned on our cash and cash equivalents.

Other Income (Expense), Net

Other income (expense), net consists primarily of foreign currency gains (losses), changes in the fair value of the Bookings Commitment, changes in the fair value of our derivative liability, and other non-recurring items.

Loss from Equity Method Investment

Loss from equity method investment consists of our pro rata share of losses of a company that we have an ownership interest in and account for under the equity method of accounting, amortization of basis differences, and other-than-temporary impairments in the value of our investment. We regularly evaluate our investment, which is not carried at fair value, for other-than-temporary-impairment in accordance with U.S. GAAP.

Provision for (Benefit from) Income Taxes

Provision for (benefit from) income taxes consists of U.S. federal and state and foreign income taxes. We are required to allocate the provision for income taxes between continuing operations and other categories of earnings, such as discontinued operations. To date, we have no significant U.S. federal, state and foreign cash income taxes because of our current and accumulated net operating losses ("NOLs").

We record a valuation allowance when it is more likely than not that some portion or all of a deferred tax asset will not be realized. In making such a determination, we consider all the available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, and ongoing prudent and feasible tax planning strategies in assessing the amount of the valuation allowance. When we establish or reduce the valuation allowance against the deferred tax assets, our provision for income taxes will increase or decrease, respectively, in the period such determination is made.

Income (Loss) from Discontinued Operations, Net of Tax, Attributable to NantHealth

Income (loss) from discontinued operations, net of tax, attributable to NantHealth consists of earnings or losses related to the disposition of components of our business.

Net Income (Loss) Attributable to Noncontrolling Interests

Net income (loss) attributable to noncontrolling interests consists of earnings or losses related to minority ownership of components of our business.

Results of Operations

The following table sets forth our Consolidated Statements of Operations data for each of the periods indicated:

(Dollars in thousands)	Year Ended December 31,	
	2020	2019
Revenue		
Software-as-a-service related	\$ 72,198	\$ 72,831
Maintenance	677	—
Professional services	86	—
Total software-related revenue	72,961	72,831
Sequencing and molecular analysis	211	1,733
Home health care services	—	2,863
Total net revenue	73,172	77,427
Cost of Revenue		
Software-as-a-service related	23,056	23,100
Maintenance	361	357
Professional services	16	—
Amortization of developed technologies	4,755	4,662
Total software-related cost of revenue	28,188	28,119
Sequencing and molecular analysis	1,038	4,546
Home health care services	—	1,471
Total cost of revenue	29,226	34,136
Gross Profit	43,946	43,291
Operating Expenses		
Selling, general and administrative	48,534	55,595
Research and development	17,274	13,934
Amortization of acquisition-related assets	3,676	4,216
Impairment of intangible assets, including internal-use software	729	3,977
Total operating expenses	70,213	77,722
Loss from operations	(26,267)	(34,431)
Interest expense, net	(19,199)	(18,044)
Other expense, net	(10,824)	(5,607)
Loss from related party equity method investment	(31,702)	(8,317)
Loss from continuing operations before income taxes	(87,992)	(66,399)
Provision for (benefit from) income taxes	447	(1,018)
Net loss from continuing operations	(88,439)	(65,381)
Income from discontinued operations, net of tax, attributable to NantHealth	31,993	2,619
Net loss	(56,446)	(62,762)
Net loss attributable to noncontrolling interests	(120)	—
Net loss attributable to NantHealth	\$ (56,326)	\$ (62,762)

The following table sets forth our Consolidated Statements of Operations data as a percentage of revenue for each of the periods indicated (Unaudited):

	Year Ended December 31,	
	2020	2019
Revenue		
Software-as-a-service related	98.7 %	94.1 %
Maintenance	0.9 %	0.0 %
Professional services	0.1 %	0.0 %
Total software-related revenue	99.7 %	94.1 %
Sequencing and molecular analysis	0.3 %	2.2 %
Home health care services	0.0 %	3.7 %
Total net revenue	100.0 %	100.0 %
Cost of Revenue		
Software-as-a-service related	31.5 %	29.8 %
Maintenance	0.5 %	0.5 %
Professional services	0.0 %	0.0 %
Amortization of developed technologies	6.5 %	6.0 %
Total software-related cost of revenue	38.5 %	36.3 %
Sequencing and molecular analysis	1.4 %	5.9 %
Home health care services	— %	1.9 %
Total cost of revenue	39.9 %	44.1 %
Gross Profit	60.1 %	55.9 %
Operating Expenses		
Selling, general and administrative	66.3 %	71.8 %
Research and development	23.6 %	18.0 %
Amortization of acquisition-related assets	5.0 %	5.4 %
Impairment of intangible assets, including internal-use software	1.1 %	5.2 %
Total operating expenses	96.0 %	100.4 %
Loss from operations	(35.9 %)	(44.5 %)
Interest expense, net	(26.2 %)	(23.3 %)
Other expense, net	(14.8 %)	(7.2 %)
Loss from related party equity method investment	(43.4 %)	(10.8 %)
Loss from continuing operations before income taxes	(120.3 %)	(85.8 %)
Provision for (benefit from) income taxes	0.6 %	(1.4 %)
Net loss from continuing operations	(120.9 %)	(84.4 %)
Income from discontinued operations, net of tax, attributable to NantHealth	43.7 %	3.3 %
Net loss	(77.2 %)	(81.1 %)
Net loss attributable to noncontrolling interests	(0.2 %)	— %
Net loss attributable to NantHealth	(77.0 %)	(81.1 %)

Comparison of the years ended December 31, 2020 and 2019

Revenue

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2020	2019	2020 vs. 2019	
	Amount	Amount	Amount	Percentage
	Software-as-a-service related	\$ 72,198	\$ 72,831	(633)
Maintenance	677	—	677	— %
Professional services	86	—	86	— %
Total software-related revenues	72,961	72,831	130	0.2 %
Sequencing and molecular analysis	211	1,733	(1,522)	(87.8)%
Home health care services	—	2,863	(2,863)	(100.0)%
Total net revenue	\$ 73,172	\$ 77,427	\$ (4,255)	(5.5)%

Comparison of the years ended December 31, 2020 and 2019

Total revenue decreased \$4.3 million, or 5.5%, from \$77.4 million for the year ended December 31, 2019 to \$73.2 million for the year ended December 31, 2020. Our total decline in revenue was driven primarily by decreases in our home health care services and sequencing and molecular analysis revenue categories.

Total software-related revenue increased by \$0.1 million, or 0.2%, for the year ended December 31, 2020, compared to the prior year period. The increase is related to higher maintenance and professional services revenue due to the acquisition of OpenNMS (see Note 19 to the accompanying Consolidated Financial Statements) and was partially offset by a decrease in SaaS revenue of \$0.6 million. The decrease in SaaS revenue was driven by a \$3.7 million decrease in NaviNet revenue related to lower membership, lower professional services implementation amortization, and promotional activities related to the COVID-19 pandemic in the second quarter of 2020, partially offset by higher revenues of \$3.1 million from our Eviti platform solutions due to a combination of new customers and increased covered lives on existing customers.

One of our NaviNet customers representing approximately 14.9% and 12.9% of our total revenue for the years ended December 31, 2020 and 2019, respectively, did not renew its contract. While the contract expired in January 2021, the customer has requested that we continue to provide our SaaS services and transition assistance through at least June 30, 2021. Further, we continue to engage in discussions with the customer regarding supplemental services and business opportunities that may extend beyond the service termination date. Customer churn is a natural part of our business and, while there is no guarantee that we will be able to offset the loss of this customer in the short term, we continue to develop new product enhancements and offerings to help drive customer acquisition and expansion opportunities to replace this lost revenue in the long term.

Sequencing and molecular analysis revenue decreased \$1.5 million, or 87.8%, from \$1.7 million for the year ended December 31, 2019 to \$0.2 million for the year ended December 31, 2020. This decrease reflected lower volume of GPS samples sequenced and recognized as we moved to a cash basis model until full CMS billing can be established.

Currently, we recognize revenue from customers with executed contracts, and from customers without a contractual agreement where we recognize revenue on a cash basis given the uncertainty over reimbursement. As we gain additional insurance coverage, including coverage under government insurance programs, we expect to be able to reduce the portion of sequencing and molecular analysis revenue which is recognized on a cash basis.

In May 2020, we received notice of molecular diagnostic services coverage for Omics Core, which opens the path for us to receive coverage of advanced diagnostic laboratory testing at our full listing price.

Home health care services revenue decreased \$2.9 million, or 100.0%, for the year ended December 31, 2020 as compared to the prior year period. This decrease was due to the sale of our home health care services business in June 2019.

We believe that significant opportunities exist for expanded cross-selling across our products and across our existing customer base, including Eviti, NaviNet, and OpenNMS customer bases. We also believe that our customer base and our product solutions provide unique opportunities to expand the volume of GPS Cancer analysis reporting to our customer base.

Cost of Revenue

(Dollars in thousands)

	Year Ended December 31,		Period-To-Period Change	
	2020	2019	2020 vs. 2019	
	Amount	Amount	Amount	Percentage
Software-as-a-service related	\$ 23,056	\$ 23,100	\$ (44)	(0.2)%
Maintenance	361	357	4	1.1 %
Professional services	16	—	16	— %
Amortization of developed technologies	4,755	4,662	93	2.0 %
Total software-related cost of revenue	28,188	28,119	69	0.2 %
Sequencing and molecular analysis	1,038	4,546	(3,508)	(77.2)%
Home health care services	—	1,471	(1,471)	(100.0)%
Total cost of revenue	\$ 29,226	\$ 34,136	\$ (4,910)	(14.4)%

Comparison of the years ended December 31, 2020 and 2019

Cost of revenue decreased \$4.9 million, or 14.4%, from \$34.1 million in the year ended December 31, 2019 to \$29.2 million for the year ended December 31, 2020. The decrease is related to declines in the sequencing and molecular analysis and home health care services categories.

Total software-related cost of revenue was essentially flat from \$28.1 million in the year ended December 31, 2019 to \$28.2 million for the year ended December 31, 2020. SaaS related cost of revenue was flat due to higher personnel costs related to the timing of project implementations fully offset by lower capitalization of labor costs associated with development of internal-use software. Amortization of developed technology increased by \$0.1 million related to the acquisition of OpenNMS (see Note 19 to the accompanying Consolidated Financial Statements).

Sequencing and molecular analysis cost of revenue decreased \$3.5 million, or 77.2%, from \$4.5 million in 2019 compared to \$1.0 million in 2020. The decrease reflected the reduction in GPS cost of revenue due to a lower volume of GPS test deliveries as a result of lower orders.

Home health care services cost of revenue decreased \$1.5 million, or 100.0%, for the year ended December 31, 2020 compared to the prior year period. This decrease was due to the sale of our home health care services business in June 2019.

Selling, General and Administrative

(Dollars in thousands)

	Year Ended December 31,		Period-To-Period Change	
	2020	2019	2020 vs. 2019	
	Amount	Amount	Amount	Percentage
Selling, general and administrative	\$ 48,534	\$ 55,595	\$ (7,061)	(12.7)%

Comparison of the years ended December 31, 2020 and 2019

Selling, general and administrative expenses decreased \$7.1 million, or 12.7%, from \$55.6 million to \$48.5 million for the years ended December 31, 2019 and 2020, respectively. The decrease was attributable to a \$2.8 million decline in personnel related costs, a \$1.2 million decrease from the sale of Assisteo in June 2019, a \$1.5 million decrease in depreciation and amortization related to less fixed asset additions, a \$1.5 million decrease in shared services costs, and a \$0.1 million reduction in other costs related to various cost saving measures.

Research and Development

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2020	2019	2020 vs. 2019	
	Amount	Amount	Amount	Percentage
Research and development	\$ 17,274	\$ 13,934	\$ 3,340	24.0 %

Comparison of the years ended December 31, 2020 and 2019

Research and development expenses increased \$3.3 million, or 24.0%, from \$13.9 million in 2019 to \$17.3 million in 2020. The increase is primarily driven by increases in personnel related expenses as a result of higher headcount and professional services fees to drive product development initiatives particularly associated with our data solutions products.

Amortization of Acquisition-related Assets

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2020	2019	2020 vs. 2019	
	Amount	Amount	Amount	Percentage
Amortization of acquisition-related assets	\$ 3,676	\$ 4,216	\$ (540)	(12.8)%

Comparison of the years ended December 31, 2020 and 2019

Amortization of acquisition-related assets decreased \$0.5 million, or 12.8%, from \$4.2 million in 2019 to \$3.7 million in 2020 as a result a \$0.7 million decrease related to NaviNet trademarks that were fully amortized by the end of 2019, partially offset by a \$0.2 million increase related to amortization of intangible assets related to the acquisition of OpenNMS (see Note 19 to the accompanying Consolidated Financial Statements).

Impairment of Intangible Assets, Including Internal-use Software

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2020	2019	2020 vs. 2019	
	Amount	Amount	Amount	Percentage
Impairment of intangible assets, including internal-use software	\$ 729	\$ 3,977	\$ (3,248)	(81.7)%

Comparison of the years ended December 31, 2020 and 2019

Impairment of intangible assets, including internal-use software decreased \$3.2 million, or 81.7%, from \$4.0 million in 2019 to \$0.7 million in 2020.

In the fourth quarter of 2020, our discussions with and exploration of potential opportunities for our molecular analysis services indicated that certain internal-use software developed by the Company related to our GPS Cancer product would not be utilized in those arrangements. As a result, we determined that the carrying value of these internal-use software assets was not recoverable as of December 31, 2020 and recorded an impairment loss of \$0.7 million within operating expenses. In June 2019, we identified an indicator of impairment with respect to the NantHealth Labs definite-lived intangible assets given the decline in sales and our decision to cease commercial sales of our liquid biopsy test product. We determined that the assets were not recoverable given the significant amount of costs required to further build evidence of clinical utility while also ceasing commercial sales of the Liquid GPS product.

Interest Expense, Net

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2020	2019	2020 vs. 2019	
	Amount	Amount	Amount	Percentage
Interest expense, net	\$ (19,199)	\$ (18,044)	\$ (1,155)	6.4 %

Comparison of the years ended December 31, 2020 and 2019

Interest expense, net increased by \$1.2 million, from \$18.0 million for the year ended December 31, 2019 to \$19.2 million for the year ended December 31, 2020. This increase is due to a \$0.8 million increase in interest expense from the amortization of debt discounts and deferred financing costs on our Convertible Notes issued in 2016, and a \$0.3 million increase in interest expense from our NantCapital Note, due to interest accruals.

Refer to the section entitled "Liquidity and Capital Resources" below, Note 11, and Note 19 to our Consolidated Financial Statements included in Item 8 of this Annual Report on Form 10-K for further discussion of our Convertible Notes and the NantCapital Note.

Other Expense, Net

(Dollars in thousands)	Year Ended December 31,		Period-To-Period Change	
	2020	2019	2020 vs. 2019	
	Amount	Amount	Amount	Percentage
Other expense, net	\$ (10,824)	\$ (5,607)	\$ (5,217)	93.0 %

Comparison of the years ended December 31, 2020 and 2019

Other expense, net increased by \$5.2 million, from \$5.6 million for the year ended December 31, 2019 to \$10.8 million for the year ended December 31, 2020. The expense during 2020 was mainly driven by a \$11.2 million increase in the fair value of the Bookings Commitment liability, as a result of changes in the cost of debt due to macroeconomic factors and the passage of time, partially offset by income from transition services provided to Masimo related to the sale of the Connected Care Business (see Note 4 to the accompanying Consolidated Financial Statements).

Loss from Related Party Equity Method Investment

(Dollars in thousands)

	Year Ended December 31,		Period-To-Period Change	
	2020	2019	2020 vs. 2019	
	Amount	Amount	Amount	Percentage
Loss from related party equity method investment	\$ (31,702)	\$ (8,317)	\$ (23,385)	281.2 %

The loss from related party equity method investment is related to our pro rata share of losses from our investment in NantOmics, amortization of the basis difference in the investment, and impairment losses. We report our share of NantOmics' losses and amortization of the basis difference using a one quarter lag.

Comparison of the years ended December 31, 2020 and 2019

Loss from our equity method investment increased \$23.4 million, from \$8.3 million during the year ended December 31, 2019 to \$31.7 million during the year ended December 31, 2020.

This increase was primarily due to an other-than-temporary impairment of the full carrying value of our investment in NantOmics of \$28.2 million at June 30, 2020 (see Note 10 to the accompanying Consolidated Financial Statements).

Provision for (Benefit from) Income Taxes

(Dollars in thousands)

	Year Ended December 31,		Period-To-Period Change	
	2020	2019	2020 vs. 2019	
	Amount	Amount	Amount	Percentage
Provision for (benefit from) income taxes	\$ 447	\$ (1,018)	\$ 1,465	(143.9)%

Comparison of the years ended December 31, 2020 and 2019

We are required to allocate the provision for (benefit from) income taxes between continuing operations and other categories of earnings, such as discontinued operations. For the years ended December 31, 2020 and 2019, the provision for (benefit from) income taxes from continuing operations were a provision of \$0.4 million and a benefit of \$1.0 million, respectively, and included income tax expense (benefit) of the consolidated group based on an estimated annual effective tax rate.

The effective tax rates for the years ended December 31, 2020 and 2019 in continuing operations were a provision of 0.51% and a benefit of 1.53%, respectively. The effective tax rate for the year ended December 31, 2020 in continuing operations differed from the U.S. federal statutory rate of 21% primarily as a result of a reduction to the deferred tax liability related to an indefinite lived intangible, an increase of purchase accounting deferred tax liabilities that cannot be absorbed by the deferred tax assets, nondeductible expenses, state income taxes, foreign income taxes, and the impact of valuation allowance on deferred tax assets. The 2019 tax benefit is mainly due to the reduction of excess deferred tax liabilities in certain jurisdictions.

For the year ended December 31, 2020, the provision for income taxes from continuing operations of \$0.4 million excluded an income tax benefit of \$0.3 million, which was included in income from discontinued operations, net of tax in the accompanying Consolidated Statement of Operations. This income tax benefit is related to the book and tax basis difference in certain intangible assets sold to Masimo (see Note 4 to the accompanying Consolidated Financial Statements).

Income from Discontinued Operations, Net of Tax, Attributable to NantHealth

(Dollars in thousands)	Year Ended December		Period-To-Period Change	
	31,		2020 vs. 2019	
	2020	2019		
	Amount	Amount	Amount	Percentage
Income from discontinued operations, net of tax, attributable to NantHealth	\$ 31,993	\$ 2,619	\$ 29,374	1,121.6 %

For the year ended December 31, 2020, income from discontinued operations, net of tax, attributable to NantHealth was primarily related to the gain on sale of the Connected Care Business (see Note 4 to the accompanying Consolidated Financial Statements).

Net Loss Attributable to Noncontrolling Interests

(Dollars in thousands)	Year Ended December		Period-To-Period Change	
	31,		2020 vs. 2019	
	2020	2019		
	Amount	Amount	Amount	Percentage
Net loss attributable to noncontrolling interests	\$ (120)	\$ —	\$ (120)	— %

Comparison of the years ended December 31, 2020 and 2019

For the years ended December 31, 2020, the net loss attributable to noncontrolling interests was related to OpenNMS (see Note 19 to the accompanying Consolidated Financial Statements).

Liquidity and Capital Resources

Sources of Liquidity

As of December 31, 2020, we had cash and cash equivalents of \$22.8 million, compared to \$5.2 million as of December 31, 2019, of which \$0.4 million and \$0.2 million, respectively, related to foreign subsidiaries.

In accordance with Accounting Standards Update ("ASU") 2014-15, *Presentation of Financial Statements—Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern*, management is required to perform a two-step analysis over our ability to continue as a going concern. Management must first evaluate whether there are conditions and events that raise substantial doubt about our ability to continue as a going concern for a period of 12 months from the date the financial statements are issued. If management concludes that substantial doubt is raised, management is also required to consider whether our plans alleviate that doubt.

As a result of continuing anticipated operating cash outflows and the upcoming maturity of our Convertible Notes in December 2021, we believe that substantial doubt exists regarding our ability to continue as a going concern without additional funding or financing under step one of the going concern model. However, we continue to have a plan where our Chairman and CEO has the intent and ability to support our operations with additional funds as required which we believe alleviates such doubt. We may also seek to sell additional equity, through one or more follow-on public offerings or in separate financings, or sell additional debt securities or obtain a credit facility. However, we may not be able to secure such financing in a timely manner or on favorable terms. We may also consider selling off components of our business. Without additional funds, we may choose to delay or reduce our operating or investment expenditures. Further, because of the risk and uncertainties associated with the commercialization of our existing products as well as products in development, we may need additional funds to meet our needs sooner than planned. To date, our primary sources of capital have been the private placement of membership interests prior to our IPO, debt financing agreements, including the NantCapital Note and the Convertible Notes, the sale of our common stock, and proceeds from the sale of components of our business.

Convertible Notes

In December 2016, we entered into a purchase agreement (the "Purchase Agreement") with J.P. Morgan Securities LLC and Jefferies LLC, as representatives of the several initial purchasers named therein (collectively, the "Initial Purchasers"), to issue and sell \$90.0 million in aggregate principal amount of our 5.50% Convertible Senior Notes due 2021 (the "Convertible Notes") in a private placement to qualified institutional buyers pursuant to Rule 144A under the Securities Act of 1933 (the "Securities Act"). In December 2016, we entered into a purchase agreement (the "Cambridge Purchase Agreement") with Cambridge Equities, L.P. ("Cambridge"), an entity affiliated with Dr. Patrick Soon-Shiong, our Chairman and Chief Executive Officer, to issue and sell \$10.0 million in aggregate principal amount of the Convertible Notes in a private placement pursuant to an exemption from the registration requirements of the Securities Act afforded by Section 4(a)(2) of the Securities Act. In December 2016, pursuant to the exercise of the overallotment by the Initial Purchasers, we issued an additional \$7.0 million principal amount of the Convertible Notes. The total net proceeds from this offering were approximately \$102.7 million, comprised of \$9.9 million from Cambridge and \$92.8 million from the Initial Purchasers, after deducting the Initial Purchasers' discount and debt issuance costs of \$4.3 million in connection with the Convertible Notes offering.

On December 21, 2016, we entered into an indenture, relating to the issuance of the Convertible Notes (the "Indenture"), by and between us and U.S. Bank National Association, as trustee (the "Trustee"). The interest rates are fixed at 5.50% per year, payable semi-annually on June 15 and December 15 of each year, beginning on June 15, 2017. The Convertible Notes will mature on December 15, 2021, unless earlier repurchased by us or converted pursuant to their terms. The initial conversion rate of the Convertible Notes is 82.3893 shares of common stock per \$1,000 principal amount of Convertible Notes (which is equivalent to an initial conversion price of approximately \$12.14 per share). Prior to the close of business on the business day immediately preceding September 15, 2021, the Convertible Notes will be convertible only under the following circumstances: (1) during any calendar quarter commencing after March 31, 2017 (and only during such calendar quarter), if, for at least 20 trading days (whether or not consecutive) during the 30 consecutive trading day period ending on the last trading day of the immediately preceding calendar quarter, the last reported sales price of our common stock on such trading day is greater than or equal to 120% of the conversion price on such trading day; (2) during the five-business day period after any five consecutive trading day period in which, for each day of that period, the trading price per \$1,000 principal amount of the Convertible Notes for such trading day was less than 98% of the product of the last reported sales price of our common stock and the conversion rate on such trading day; or (3) upon the occurrence of specified corporate transactions. Upon conversion, the Convertible Notes will be settled in cash, shares of our common stock or any combination thereof at our option.

Upon the occurrence of a fundamental change (as defined in the Indenture), holders may require us to purchase all or a portion of the Convertible Notes in principal amounts of \$1,000 or an integral multiple thereof, for cash at a price equal to 100% of the principal amount of the Convertible Notes to be purchased plus any accrued and unpaid interest to, but excluding, the fundamental change purchase date. The conversion rate will be subject to adjustment upon the occurrence of certain specified events.

NantCapital Notes

In January 2016, we executed a demand promissory note with NantCapital (the "NantCapital Note"), a personal investment vehicle for Dr. Patrick Soon-Shiong, our Chairman and CEO. As of December 31, 2020, the total advances made by NantCapital to us pursuant to the note was approximately \$112.7 million. In May 2016, the NantCapital Note was amended and restated to provide that all outstanding principal and accrued and unpaid interest is due and payable on June 30, 2021, and not on demand. On December 15, 2016, in connection with the offering of the Convertible Notes, we entered into a Second Amended and Restated Promissory Note which amended and restated the Amended and Restated Promissory Note, dated May 9, 2016, between us and NantCapital, to, among other things, extend the maturity date of the NantCapital Note to June 15, 2022 and to subordinate the NantCapital Note in right of payment to the Convertible Notes. We can request additional advances subject to NantCapital approval. There are no other stated restrictions or maximum commitment for advances. The NantCapital Note bears interest at a per annum rate of 5.0% compounded annually and computed on the basis of the actual number of days in the year. NantCapital has the option, but not the obligation, to require us to repay any such amount in cash, Series A-2 units of NantOmics (based on a per unit price of \$1.484) held by us, shares of our common stock based on a per share price of \$18.6126 (if such equity exists at the time of repayment), or any combination of the foregoing at the sole discretion of NantCapital.

On August 8, 2018, we executed a promissory note in favor of NantCapital, with a maturity date of June 15, 2022. On December 31, 2020, we executed an agreement with NantCapital to amend and restate the original promissory note, allowing us to request advances up a maximum commitment of \$125.0 million that bears interest at a per annum rate of 5.50%, extended the maturity date to December 31, 2023, and created an option for the securitization of the debt under the promissory note upon full repayment of the Convertible Notes. Interest payments on outstanding amounts are due on December 15th of each calendar year. The promissory note is subordinated to the Convertible Notes. The promissory note includes customary negative covenants. No advances have currently been made under the promissory note. At December 31, 2020, the Company was in compliance with the covenants.

If we raise additional funds by issuing equity securities or securities convertible into equity, our stockholders could experience dilution. Additional debt financing, if available, may involve covenants restricting our operations or our ability to incur additional debt. Any additional debt financing or additional equity that we raise may contain terms that are not favorable to us or our stockholders and require significant debt service payments, which diverts resources from other activities. Additional financing may not be available at all, or in amounts or on terms acceptable to us. If we are unable to obtain additional financing, we may be required to delay the development, commercialization and marketing of our products and scale back our business and operations.

NantOmics Note

On January 22, 2016, we executed a demand promissory note in favor of NantOmics. The note bears interest at a per annum rate of 5.0% and is compounded annually. In May and June of 2016, we executed amendments to the demand promissory note with NantOmics, which provided a maturity date for the promissory note of June 30, 2021. We can request advances subject to NantOmics approval. There are no other stated restrictions or maximum commitment for advances. No advances have currently been made under the promissory note.

Cash Flows

The following table sets forth our primary sources and uses of cash for the periods indicated:

(Dollars in thousands)	Year Ended December 31,	
	2020	2019
Cash provided by (used in):		
Operating activities	\$ (16,854)	\$ (8,765)
Investing activities	35,254	(4,290)
Financing activities	(555)	(32)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(62)	25
Net increase (decrease) in cash, cash equivalents and restricted cash	\$ 17,783	\$ (13,062)

To date, our operations have been primarily financed through the proceeds from related party promissory notes, the Convertible Notes, the sale of components of our business, and through equity issuances, including net cash proceeds from our IPO. In June 2016, we sold 6,900,000 shares of common stock at a price of \$14.00 per share, which includes 400,000 shares sold to the underwriter upon exercise of their overallotment option to purchase additional shares of our Company. We raised net proceeds of \$83.6 million from our IPO, after underwriting fees, discounts and commissions of \$4.9 million and other offering costs of \$8.1 million. In December 2016, we issued Convertible Notes to related party and others for aggregate net proceeds of \$102.7 million, \$9.9 million from Cambridge, and \$92.8 million from others, after deducting underwriting discounts and commissions and offering costs of \$4.3 million. In February 2020, we received \$47.3 million in proceeds from the sale of our Connected Care Business.

Operating Activities

Our cash flows from operating activities have been driven by rate of revenue, billings, and collections, the timing and extent of spending to support product development efforts and enhancements to existing services, the timing of general and administrative expenses, and the continuing market acceptance of our solutions.

In addition, our net loss in the year ended December 31, 2020 has been greater than our use of cash for operating activities due to the inclusion of noncash charges.

Cash used in operating activities of \$16.9 million in the year ended December 31, 2020 was a result of our continued investments in enhancements to current products, research and development, sales and marketing, and expenses incurred as a public company, including costs associated with public company reporting and corporate governance requirements. In the year ended December 31, 2020, \$37.4 million, or 66%, of our net loss of \$56.4 million consisted of noncash items, including \$16.8 million of depreciation and amortization expense, a \$31.7 million loss from our related party equity method investment, a \$11.2 million increase in the fair value of the Bookings Commitment liability, \$6.5 million amortization of debt discounts and deferred financing offering costs, \$2.6 million in stock-based compensation expense, and a \$0.7 million impairment of intangible assets related to internal-use software, partially offset by a \$32.2 million gain on sale of our Connected Care Business (see Note 4 to the accompanying Consolidated Financial Statements).

Changes in working capital increased cash by \$2.2 million in the year ended December 31, 2020. The change in cash was primarily attributable to a \$19.0 million reduction in accrued and other current liabilities, a \$15.1 million reduction in prepaid expenses and other current assets, a \$7.0 million increase in related party payables, net, a \$7.4 million reduction in deferred revenues, and a \$4.8 million reduction in accounts receivable.

Cash used in operating activities of \$8.8 million in the year ended December 31, 2019 was a result of our continued investments in enhancements to current products, research and development, sales and marketing, and expenses incurred as a public company, including costs associated with public company reporting and corporate governance requirements. In the year ended December 31, 2019, \$48.1 million, or 77%, of our net loss of \$62.8 million consisted of noncash items, including \$22.4 million of depreciation and amortization expense, \$8.3 million loss from our related party equity method investment, \$5.7 million amortization of debt discounts and deferred financing offering costs, a \$5.0 million increase in the fair value of the Bookings Commitment liability, \$4.0 million impairment of intangible assets, and \$2.8 million in stock-based compensation expense. Certain of our securities litigation (see Part I. Item 3. Legal Proceedings) costs are covered and paid directly by insurance, with \$17.1 million of costs recorded in accrued and other current liabilities and a corresponding \$16.6 million of insurance receivables recognized in prepaid expenses and other current assets.

Changes in working capital increased cash by \$5.9 million in the year ended December 31, 2019. The change in cash was primarily attributable to a \$17.4 million increase in accrued and other current liabilities, a \$16.6 million increase in prepaid expenses and other current assets, a \$6.0 million increase in related party payables, net, a \$4.9 million reduction in deferred revenues, and a \$3.3 million reduction in accounts receivable.

Investing Activities

Our primary investing activities have consisted of the sale of our Connected Care Business (see Note 4 to the accompanying Consolidated Financial Statements) and capital expenditures to develop our software as well as to purchase computer equipment and furniture and fixtures in support of expanding our infrastructure.

We received \$35.3 million of cash from investing activities in the year ended December 31, 2020, comprised of \$46.4 million of net proceeds from the sale of our Connected Care Business (see Note 4 to the accompanying Consolidated Financial Statements), offset by \$5.5 million net cash paid for the acquisition of OpenNMS (see Note 19 to the accompanying Consolidated Financial Statements) and \$5.7 million of investment used for the purchase of property and equipment, including internal-use software.

We used \$4.3 million of cash in investing activities in the year ended December 31, 2019, primarily attributed to investment in internal-use software.

Financing Activities

Cash used in financing activities during the year ended December 31, 2020 were primarily attributed to proceeds from, net of repayments of, an insurance promissory note and proceeds from exercises of stock options, offset by payments to tax authorities on the employees' behalf to satisfy withholding requirements on income earned from vested shares of the Nant Health, LLC Phantom Unit Plan (the "Phantom Unit Plan") and restricted stock units.

Cash used in financing activities during the year ended December 31, 2019 were primarily attributed to proceeds from, net of repayments of, an insurance promissory note, offset by payments to tax authorities on the employees' behalf to satisfy withholding requirements on income earned from vested shares of the Phantom Unit Plan and restricted stock units.

Contractual Obligations

Our principal material cash requirements consist of obligations under our outstanding debt obligations related to the Convertible Notes and NantCapital Note, Bookings Commitment, and noncancelable leases for our office space. Refer to Note 11, Note 19, Note 12, and Note 13, respectively, to the accompanying Consolidated Financial Statements.

Additionally, our estimated noncancelable contractual obligations for our enterprise resource planning implementation project through the shared services agreement with NantWorks total approximately \$1.3 million. See Note 14 and Note 19 to the accompanying Consolidated Financial Statements.

New Accounting Pronouncements

See Note 2, "Summary of Significant Accounting Policies" to the accompanying Consolidated Financial Statements for a discussion of new accounting standards.

Off-Balance Sheet Arrangements

During the periods presented, we did not have any off-balance sheet arrangements.

Related Party Transactions

See Note 19 to the accompanying Consolidated Financial Statements for a discussion of related party transactions.

Critical Accounting Policies and Significant Judgments and Estimates

This Management's Discussion and Analysis of our Results of Operations and Liquidity and Capital Resources is based on our Consolidated Financial Statements, which we have prepared in accordance with accounting principles generally accepted in the United States. The preparation of our financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of our financial statements, as well as the reported revenues and expenses during the reported periods. We evaluate these estimates and judgments on an ongoing basis. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We consider policies relating to the following matters to be critical accounting policies:

- Revenue from Contracts with Customers;
- Stock-Based Compensation;
- Change in fair value of Bookings Commitment;
- Income Taxes;
- Leases;
- Business Combinations;

- Software Developed for Internal Use;
- Goodwill and Intangible Assets; and
- Investment in Related Party.

For a discussion of each of our critical accounting policies, including information and analysis of estimates and assumptions involved in their application, and other significant accounting policies, see Note 2, "Summary of Significant Accounting Policies," to the accompanying Consolidated Financial Statements.

JOBS Act

On April 5, 2012, the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, was enacted. Section 107 of the JOBS Act provides that an "emerging growth company" can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act for complying with new or revised accounting standards. In other words, an "emerging growth company" can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected not to avail ourselves of this extended transition period and, as a result, we adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies. Subject to certain conditions set forth in the JOBS Act, as an "emerging growth company," we intend to rely on certain exemptions and reduced reporting requirements provided by the JOBS Act, including those relating to (i) providing an auditor's attestation report on our system of internal control over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act and (ii) complying with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements, known as the auditor discussion and analysis. We will remain an "emerging growth company" until the earliest of (i) the last day of our first fiscal year in which we have total annual gross revenues of \$1.07 billion or more, (ii) the date on which we are deemed to be a "large accelerated filer" under the rules of the SEC with at least \$700 million of outstanding equity securities held by non-affiliates, (iii) the date on which we have issued more than \$1 billion in non-convertible debt during the previous three years, or (iv) the last day of our fiscal year following the fifth anniversary of the date of the completion of our initial public offering.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk

As of December 31, 2020, we had \$22.8 million in cash and cash equivalents which were held for working capital purposes. Our cash and cash equivalents are comprised primarily of mutual funds listed on active exchanges, U.S. treasury securities, money market funds, and cash held in FDIC - insured institutions. Our investments are made for capital preservation purposes. We do not enter into investments for trading or speculative purposes. Primarily all our investments are denominated in U.S. dollars. If overall interest rates had decreased by 10% during the periods presented, our interest income would not have been materially affected.

Credit Risk

Our cash equivalents are subject to market risk due to changes in interest rates. Fixed rate securities may have their market value adversely affected due to a rise in interest rates, while floating rate securities may produce less income than expected if interest rates fall. Due in part to these factors, our future investment income may fall short of expectations due to changes in interest rates or we may suffer losses in principal if we are forced to sell securities that decline in market value due to changes in interest rates.

Foreign Currency Risk

We maintain offices and bank accounts in the United Kingdom and Canada. However, due to the low volume of activity outside the United States, the foreign currency risk is minimal. The effect of a 10% adverse change in exchange rates on foreign currency denominated cash and payables as of December 31, 2020 would not have been material. However, fluctuations in currency exchange rates could harm our business in the future.

Item 8. Financial Statements and Supplementary Data

NantHealth, Inc.
Consolidated Financial Statements
Years Ended December 31, 2020 and 2019
(Dollars in thousands, except per share amounts)

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Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of NantHealth, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of NantHealth, Inc. (the Company) as of December 31, 2020 and 2019, the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for each of the two years in the period ended December 31, 2020, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2020, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Related party transactions

Description of the Matter

As discussed in Note 19 to the consolidated financial statements, the Company has entered into multiple transactions with related parties, each of which are controlled by Dr. Patrick Soon-Shiong.

As a result of the volume and the significance of related party transactions, assessing the sufficiency of procedures performed to identify related parties and related party transactions as well as to audit identified related party transactions was a critical audit matter.

How We Addressed the Matter in Our Audit

The audit procedures we performed to address this critical audit matter included testing the completeness and accuracy of the listing of significant related party transactions provided by management, testing the manner in which related party transactions were recorded, presented and disclosed, and performing searches for payments and other transactions with identified related parties. We also inspected questionnaires received from the Company's directors and officers, read employment and compensation contracts, proxy statements and other relevant filings with the Securities and Exchange Commission and other regulatory agencies that relate to the Company's financial relationships and transactions with the Company's executive officers and with other entities controlled by Dr. Patrick Soon-Shiong. We confirmed related party transactions and balances with the counterparty. We made inquiries of management as well as members of the Company's audit committee regarding the completeness of the identified related party transactions, and assessed the adequacy of financial statement footnote disclosure pertaining to related party transactions.

Goodwill allocation to discontinued operation

Description of the Matter

As described in Note 9 to the consolidated financial statements, the Company allocated \$18.6 million of goodwill to discontinued operations as a result of the sale of the Connected Care Business ("DCX") in February, 2020. Goodwill was allocated based on the relative fair values of DCX as a percentage of the total fair value of DCX and the Company that remains after the sale.

Auditing the goodwill allocation was complex and required the involvement of our specialists due to the highly judgmental nature of the assumptions, such as weighted average cost of capital and discrete and terminal period revenue growth rates, used to develop the fair value estimates used to make the allocation.

How We Addressed the Matter in Our Audit

To test the goodwill allocation, our audit procedures included, among others, evaluating the methodologies used, including the significant assumptions discussed above, and the underlying data used by the Company in making the relevant fair value estimates. To test the Company's forecasts and assumptions, we compared them to current industry, market and economic trends and performed sensitivity analyses to evaluate the changes in fair value that would result from changes in the significant assumptions, including the timing of projected revenue growth.

In addition, we utilized our valuation specialists to assist in our evaluation of the significant assumptions used by the Company, including the weighted average cost of capital and discrete and terminal period revenue growth rates used to develop the fair value estimates. We also tested the completeness and accuracy of underlying data, such as the projected financial information. Further, we considered if there was any contrary evidence to the forecasted information and assumptions of management.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2013.

Los Angeles, California
February 26, 2021

NantHealth, Inc.
Consolidated Balance Sheets
(Dollars in thousands, except per share amounts)

	December 31,	
	2020	2019
Assets		
Current assets		
Cash and cash equivalents	\$ 22,787	\$ 5,243
Accounts receivable, net	3,273	6,179
Related party receivables, net	1,031	823
Prepaid expenses and other current assets	3,504	19,341
Current assets of discontinued operations	—	6,327
Total current assets	30,595	37,913
Property, plant, and equipment, net	13,102	14,985
Goodwill	98,333	97,307
Intangible assets, net	47,969	51,848
Investment in related party	—	31,702
Related party receivable, net of current	823	1,108
Operating lease right-of-use assets	7,539	8,470
Other assets	1,927	1,818
Noncurrent assets of discontinued operations	—	21,336
Total assets	\$ 200,288	\$ 266,487
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	\$ 5,122	\$ 3,377
Accrued and other current liabilities	13,975	31,988
Deferred revenue	1,166	7,098
Related party payables, net	4,238	4,120
Notes payable	268	238
Related party convertible note, net	9,411	—
Convertible notes, net	90,578	—
Current liabilities of discontinued operations	—	10,680
Total current liabilities	124,758	57,501
Deferred revenue, net of current	393	1,129
Related party liabilities	31,091	24,227
Related party promissory note	112,666	112,666
Related party convertible note, net	—	8,864
Convertible notes, net	—	84,648
Deferred income taxes, net	1,853	1,669
Operating lease liabilities	8,170	9,728
Other liabilities	32,757	21,542
Noncurrent liabilities of discontinued operations	—	1,649
Total liabilities	311,688	323,623
Commitments and Contingencies (Note 14)		
Stockholders' deficit		
Common stock, \$0.0001 par value per share, 750,000,000 shares authorized; 111,284,733 and 110,619,678 shares issued and outstanding at December 31, 2020 and 2019, respectively	11	11
Additional paid-in capital	891,583	889,955
Accumulated deficit	(1,003,210)	(946,884)
Accumulated other comprehensive loss	(168)	(218)
Total NantHealth stockholders' deficit	(111,784)	(57,136)
Noncontrolling interests	384	—
Total stockholders' deficit	(111,400)	(57,136)
Total liabilities and stockholders' deficit	\$ 200,288	\$ 266,487

The accompanying notes are an integral part of these Consolidated Financial Statements.

NantHealth, Inc.
Consolidated Statements of Operations
(Dollars in thousands, except per share amounts)

	Year Ended December 31,	
	2020	2019
Revenue		
Software-as-a-service related	\$ 72,198	\$ 72,831
Maintenance	677	—
Professional services	86	—
Total software-related revenue	72,961	72,831
Sequencing and molecular analysis	211	1,733
Home health care services	—	2,863
Total net revenue	73,172	77,427
Cost of Revenue		
Software-as-a-service related	23,056	23,100
Maintenance	361	357
Professional services	16	—
Amortization of developed technologies	4,755	4,662
Total software-related cost of revenue	28,188	28,119
Sequencing and molecular analysis	1,038	4,546
Home health care services	—	1,471
Total cost of revenue	29,226	34,136
Gross Profit	43,946	43,291
Operating Expenses		
Selling, general and administrative	48,534	55,595
Research and development	17,274	13,934
Amortization of acquisition-related assets	3,676	4,216
Impairment of intangible assets, including internal-use software	729	3,977
Total operating expenses	70,213	77,722
Loss from operations	(26,267)	(34,431)
Interest expense, net	(19,199)	(18,044)
Other expense, net	(10,824)	(5,607)
Loss from related party equity method investment	(31,702)	(8,317)
Loss from continuing operations before income taxes	(87,992)	(66,399)
Provision for (benefit from) income taxes	447	(1,018)
Net loss from continuing operations	(88,439)	(65,381)
Income from discontinued operations, net of tax, attributable to NantHealth	31,993	2,619
Net loss	(56,446)	(62,762)
Net loss attributable to noncontrolling interests	(120)	—
Net loss attributable to NantHealth	\$ (56,326)	\$ (62,762)
Basic and diluted net loss per share attributable to NantHealth:		
Continuing operations - common stock	\$ (0.80)	\$ (0.59)
Discontinued operations - common stock	\$ 0.29	\$ 0.02
Total net loss per share - common stock	\$ (0.51)	\$ (0.57)
Weighted average shares outstanding		
Basic and diluted - common stock	110,954,858	110,351,638

The accompanying notes are an integral part of these Consolidated Financial Statements.

NantHealth, Inc.
Consolidated Statements of Comprehensive Loss
(Dollars in thousands)

	Year Ended December 31,	
	2020	2019
Net loss	\$ (56,446)	\$ (62,762)
Other comprehensive income (loss), net of tax		
Foreign currency translation adjustments	51	129
Total other comprehensive income	51	129
Comprehensive loss	(56,395)	(62,633)
Less: Comprehensive loss attributable to noncontrolling interests	(119)	—
Comprehensive loss attributable to NantHealth	<u>\$ (56,276)</u>	<u>\$ (62,633)</u>

The accompanying notes are an integral part of these Consolidated Financial Statements.

NantHealth, Inc.
Consolidated Statements of Stockholders' Equity (Deficit)
(Dollars in thousands)

	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total NantHealth Stockholders' Deficit	Noncontrolling interests	Total Stockholders' Equity (Deficit)
	Shares	Amount						
Balance at December 31, 2018	109,491,277	\$ 11	\$ 887,289	\$ (884,122)	\$ (347)	\$ 2,831	\$ —	\$ 2,831
Stock-based compensation expense	—	—	2,910	—	—	2,910	—	2,910
Shares issued in connection with employee stock plans, net of shares withheld for employee taxes	1,128,401	—	(264)	—	—	(264)	—	(264)
Assignment of NantHealth Labs	—	—	20	—	—	20	—	20
Other comprehensive income	—	—	—	—	129	129	—	129
Net loss	—	—	—	(62,762)	—	(62,762)	—	(62,762)
Balance at December 31, 2019	<u>110,619,678</u>	<u>11</u>	<u>889,955</u>	<u>(946,884)</u>	<u>(218)</u>	<u>(57,136)</u>	<u>—</u>	<u>(57,136)</u>
Stock-based compensation expense	—	—	2,725	—	—	2,725	—	2,725
Shares issued in connection with employee stock plans, net of shares withheld for employee taxes	665,055	—	(568)	—	—	(568)	—	(568)
Assignment of OpenNMS (see Note 19)	—	—	(529)	—	—	(529)	503	(26)
Other comprehensive income	—	—	—	—	50	50	1	51
Net loss	—	—	—	(56,326)	—	(56,326)	(120)	(56,446)
Balance at December 31, 2020	<u>111,284,733</u>	<u>\$ 11</u>	<u>\$ 891,583</u>	<u>\$ (1,003,210)</u>	<u>\$ (168)</u>	<u>\$ (111,784)</u>	<u>\$ 384</u>	<u>\$ (111,400)</u>

The accompanying notes are an integral part of these Consolidated Financial Statements.

NantHealth, Inc.
Consolidated Statements of Cash Flows
(Dollars in thousands)

	Year Ended December 31,	
	2020 ⁽²⁾	2019 ⁽²⁾
Cash flows from operating activities		
Net loss	\$ (56,446)	\$ (62,762)
Adjustments to reconcile net loss to net cash used in operating activities:		
(Gain) loss on sale of businesses	(32,211)	582
Provision for (recovery of) bad debt expense	133	(67)
Depreciation and amortization	16,770	22,362
Impairment of intangible assets, including internal-use software	729	3,977
Loss from related party equity method investment	31,702	8,317
Amortization of debt discounts and deferred financing offering cost	6,477	5,702
Change in fair value of derivatives liability	4	—
Change in fair value of Bookings Commitment	11,168	5,036
Deferred income taxes, net	(23)	(560)
Stock-based compensation	2,648	2,786
Changes in operating assets and liabilities		
Accounts receivable, net	4,786	3,316
Inventories	(18)	(302)
Related party receivables, net	77	687
Prepaid expenses and other current assets	15,143	(16,629)
Accounts payable	1,431	1,363
Accrued and other current liabilities	(19,014)	17,425
Deferred revenue	(7,376)	(4,933)
Related party payables, net	6,973	5,961
Change in operating lease right-of-use assets and liabilities	(298)	(418)
Other assets and liabilities	491	(608)
Net cash used in operating activities	<u>(16,854)</u>	<u>(8,765)</u>
Cash flows from investing activities		
Net proceeds from sale of business	46,401	300
Assignment of OpenNMS, net of cash acquired (see Note 19)	(5,475)	—
Purchases of property and equipment, including internal-use software	(5,672)	(4,590)
Net cash provided by (used in) investing activities	<u>35,254</u>	<u>(4,290)</u>
Cash flows from financing activities		
Proceeds from insurance promissory note	1,855	1,647
Repayments of insurance promissory note and notes payable	(1,842)	(1,409)
Proceeds from exercises of stock options	171	—
Tax payments related to stock issued, net of stock withheld, for vested equity awards	(739)	(270)
Net cash used in financing activities	<u>(555)</u>	<u>(32)</u>
Effect of exchange rate changes on cash, cash equivalents and restricted cash	<u>(62)</u>	<u>25</u>
Net increase (decrease) in cash, cash equivalents and restricted cash	17,783	(13,062)
Cash, cash equivalents and restricted cash, beginning of period ⁽¹⁾	6,379	19,441
Cash, cash equivalents and restricted cash, end of period ⁽¹⁾	<u>\$ 24,162</u>	<u>\$ 6,379</u>

NantHealth, Inc.
Consolidated Statements of Cash Flows
(Dollars in thousands)

	Year Ended December 31,	
	2020	2019
Supplemental disclosure of cash flow information		
Income taxes paid	\$ 130	\$ 318
Interest paid	\$ 5,912	\$ 5,909
Interest received	68	—
Noncash investing and financing activities		
Purchases of property and equipment, including internal-use software	323	1,068

⁽¹⁾ Cash and cash equivalents included restricted cash of \$1,375, \$1,136, and \$1,136 at December 31, 2020, 2019, and 2018, respectively. Restricted cash is included in prepaid expenses and other current assets and other assets, and consists of funds that are contractually restricted as to usage or withdrawal related to the Company's security deposits in the form of standby letters of credit for leased facilities and funds held in an escrow account related to the sale of the Connected Care Business (see Note 4). No amounts have been drawn upon the letters of credit as of December 31, 2020.

⁽²⁾ The statements for the years ended December 31, 2020 and 2019 include the Connected Care Business (see Note 4).

The accompanying notes are an integral part of these Consolidated Financial Statements.

Note 1. Description of Business and Basis of Presentation

Nature of Business

Nant Health, LLC was formed on July 7, 2010, as a Delaware limited liability company. On June 1, 2016, Nant Health, LLC converted into a Delaware corporation (the "LLC Conversion") and changed its name to NantHealth, Inc. ("NantHealth"). NantHealth, together with its subsidiaries (the "Company"), is a healthcare IT company converging science and technology. The Company works to transform clinical delivery with actionable clinical intelligence at the moment of decision, enabling clinical discovery through real-time machine learning systems. The Company markets certain of its solutions as a comprehensive integrated solution that includes its clinical decision support, payer engagement solutions, molecular sequencing and analysis services, data analysis and network monitoring and management. The Company also markets its clinical decision support, payer engagement solutions, molecular sequencing and analysis services, data analysis and network monitoring and management on a stand-alone basis. NantHealth is a majority-owned subsidiary of NantWorks, LLC ("NantWorks"), which is a subsidiary of California Capital Equity, LLC ("Cal Cap"). The three companies were founded by and are led by Dr. Patrick Soon-Shiong.

On June 7, 2019, the Company sold its home health care services business (see Note 4).

On February 3, 2020, the Company sold certain of its assets related to its Connected Care Business (see Note 4).

These divestitures will enable the Company to focus on its core competencies of clinical decision support, payer engagement, molecular analysis, and data analytics.

On July 22, 2020, the Company acquired The OpenNMS Group, Inc. ("OpenNMS") pursuant to an assignment agreement with Cambridge Equities, L.P. ("Cambridge"), a related party (see Note 19).

The Company intends to integrate OpenNMS with NantHealth's software portfolio and service offerings, as well as expand the Company's capabilities in cloud, SaaS, and AI technologies, providing customers with services to maintain reliable network connections for critical data flows that enable patient data collaboration and decision making at the point of care. At the same time, this transaction will allow the Company to expand penetration of OpenNMS services in the healthcare industry.

As of December 31, 2020, the Company conducted the majority of its operations in the United States, Canada, and the United Kingdom.

COVID-19 Pandemic

In March 2020, the World Health Organization declared the novel coronavirus (COVID-19) a pandemic. In the same month, the President of the United States declared a State of National Emergency due to the COVID-19 outbreak. Many jurisdictions, particularly in North America (including the United States), Europe and Asia, as well as U.S. states in which the Company operates, including California, have adopted or are considering laws, rules, regulations or decrees intended to address the COVID-19 outbreak, including implementing travel restrictions, closing non-essential businesses and/or restricting daily activities. In addition, many communities have limited, and are considering to further limit, social mobility and gathering. To date, there has been no material adverse impact to the Company's business from the COVID-19 pandemic. Given the unprecedented and evolving nature of the pandemic, the future impact of these changes and potential changes on the Company and its contractors, consultants, customers, resellers and partners is unknown at this time.

However, in light of the uncertainties regarding economic, business, social, health and geopolitical conditions, the Company's revenues, earnings, liquidity, and cash flows could be adversely affected, whether on an annual or quarterly basis. Continued impacts of the COVID-19 pandemic could materially adversely affect the Company's current and long-term accounts receivable collectibility, as its negatively impacted customers from the pandemic may request temporary relief, delay, or not make scheduled payments. In addition, the deployment of the Company's solutions may represent a large portion of its customers' investments in software technology. Decisions to make such an investment are impacted by the economic environment in which the customers operate. Uncertain global geopolitical, economic and health conditions and the lack of visibility or the lack of financial resources may cause some customers to reduce, postpone or terminate their investments, or to reduce or not renew ongoing paid services, adversely impacting the Company's revenues or timing of revenue. Health conditions in some geographic areas where the Company's customers operate could impact the economic situation of those areas. These conditions, including the COVID-19 pandemic, may present risks for health and limit the ability to travel for Company employees, which could further lengthen the Company's sales cycle and delay revenue and cash flows in the near-term.

For information on the CARES Act, refer to Note 15.

Basis of Presentation and Principles of Consolidation

The accompanying Consolidated Financial Statements include the accounts of NantHealth and its subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation. These Consolidated Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP"). The results of operations of the entities disposed of are included in the Consolidated Financial Statements up to the date of disposal and, where appropriate, these operations have been reflected as discontinued operations. Assets and liabilities of the discontinued operations are presented separately in the asset and liability sections of the prior period balance sheet.

The Company has incurred significant losses and negative cash flows from operations. As of December 31, 2020, the Company had cash and cash equivalents of \$22,787 and an accumulated deficit of \$1,003,210. The Company had a net loss of \$56,446 and used cash of \$16,854 for operating activities for the year ended December 31, 2020. In accordance with Accounting Standards Update ("ASU") 2014-15, *Presentation of Financial Statements—Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern*, management is required to perform a two-step analysis over the Company's ability to continue as a going concern. Management must first evaluate whether there are conditions and events that raise substantial doubt about the Company's ability to continue as a going concern for a period of 12 months from the date the financial statements are issued. If management concludes that substantial doubt is raised, management is also required to consider whether its plans alleviate that doubt.

As a result of continuing anticipated operating cash outflows and the upcoming maturity of the Company's convertible notes in December 2021, the Company believes that substantial doubt exists regarding the Company's ability to continue as a going concern without additional funding or financing under step one of the going concern model. However, the Company continues to have a plan where its Chairman and CEO has the intent and ability to support the Company's operations with additional funds as required which it believes alleviates such doubt. The Company may also seek to sell additional equity, through one or more follow-on public offerings or in separate financings, or sell additional debt securities or obtain a credit facility. However, the Company may not be able to secure such financing in a timely manner or on favorable terms. The Company may also consider selling off components of its business. Without additional funds, the Company may choose to delay or reduce its operating or investment expenditures. Further, because of the risk and uncertainties associated with the commercialization of the Company's existing products as well as products in development, the Company may need additional funds to meet its needs sooner than planned. To date, the Company's primary sources of capital have been the private placement of membership interests prior to its IPO, debt financing agreements, including the promissory note with Nant Capital, LLC ("NantCapital") and its convertible notes, the sale of its common stock, and proceeds from the sale of components of its business.

Note 2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of Consolidated Financial Statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the Consolidated Financial Statements and accompanying notes. Actual results may differ from those estimates. The estimates and assumptions used in the accompanying Consolidated Financial Statements are based upon management's evaluation of the relevant facts and circumstances at the balance sheet date. On an ongoing basis, the Company evaluates its estimates, including those related to revenue recognition, accounts receivable allowance, useful lives of long-lived assets and intangible assets, income taxes, stock-based compensation, impairment of long-lived assets and intangible assets, expected performance against minimum reseller commitments and the fair value of its investments and derivatives liability. The Company bases its estimates on historical experience and on various other assumptions that are believed to be reasonable, the results of which can affect the reported amounts of assets and liabilities as of the date of the financial statements, as well as the reported amounts of revenue and expenses during the periods presented.

Revenue from Contracts with Customers

Revenue is recognized upon transfer of control of promised products or services to customers in an amount that reflects the consideration the Company expects to receive in exchange for those products or services. Revenue is recognized net of sales taxes collected from customers, which are subsequently remitted to governmental authorities. The Company's revenue is generated from the following sources:

- **Software-as-a-service ("SaaS") related** - SaaS related revenue is generated from customers' access to and usage of the Company's hosted software solutions on a subscription basis for a specified contract term. In SaaS arrangements, the customer cannot take possession of the software during the term of the contract and generally has the right to access and use the software and receive any software upgrades published during the subscription period.

SaaS contracts are accounted for as a single performance obligation, as implementation and hosting services are not distinct. As a result, the Company recognizes all fees, including any up front initial system implementation service fees, or other fees, ratably over time from when the system implementation or deployment services are completed, and where necessary accepted by the customer, over the contract term, as stated, or with consideration of termination for convenience clauses as discussed below.

- **Maintenance** - Maintenance revenue includes technical support and maintenance on OpenNMS software during the contract term. Revenue is recognized over the maintenance or support term.

The Company's networking monitoring solutions typically consist of a term-based subscription to the OpenNMS software license and maintenance, which entitle customers to unspecified software updates and upgrades on a when-and-if-available basis. The Company has determined that its promises to transfer the software license and the related maintenance are not separately identifiable because the licensed software and the software updates and upgrades are highly interdependent and highly interrelated, working together to deliver a continuously updated networking monitoring solution. The Company therefore considers the software license and related maintenance obligations to represent a single, combined performance obligation with revenue recognized over the subscription period.

- **Professional services** - Professional services revenue is generated from consulting services to help customers install, integrate and optimize OpenNMS, sponsored development, and training to assist customers deploy and use OpenNMS solutions. Sponsored development relates to professional services to build customer specific functionality, features, and enhancements into the OpenNMS open source platform.

Revenue is recognized over time for most of the Company's contracts as performance obligations are satisfied, as the Company is continuously transferring control to the customer. Typically, revenue is recognized over time using direct labor hours as a measure of progress. If any significant obligations to the customer remain post-delivery, typically involving obligations relating to acceptance by the customer, revenue recognition is deferred until such obligations have been fulfilled.

Customers are generally billed as the Company satisfies its performance obligations. Billings under certain fixed-price contracts may be based upon the achievement of specified milestones.

- **Sequencing and molecular analysis** - Sequencing and molecular analysis revenue is generated by providing customers with reports of the results of performing sequencing and molecular analysis of DNA and RNA (and formerly proteomic testing) under the Company's reseller agreement with NantOmics, LLC ("NantOmics"), and from blood samples via its liquid/blood-based tumor profiling platform through the Company's subsidiary, NantHealth Labs, Inc. ("NantHealth Labs", formerly Liquid Genomics, Inc.) (see Note 19). Revenue is recognized at a point in time, when reports of results are transferred to the ordering physician or institution, or when cash is received as described below, or ratably over time for the period of a stand-ready obligation to provide blood-based tumor profiling services.

The Company's sequencing and molecular analysis revenue is primarily generated from payments received from commercial third party payers, hospitals and other provider networks and patients. The Company reports revenue from arrangements with these customers on a gross basis in accordance with Accounting Standards Codification ("ASC") 606. When reports are transferred to the ordering physician or institution, but the Company cannot conclude whether there is a contract with a customer, based on the assessment of collectibility, revenue recognition is deferred until non-refundable payment is received or payment is considered probable.

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- Home health care services - Home health care services revenue includes the sale of nursing and therapy services provided to patients in a home care setting. These revenues are recognized at a point in time or over time, as services are provided. On June 7, 2019, the Company completed the divestiture of its home health care services business (see Note 4).

Management assesses whether contracts entered into at, or near, the same time, should be combined, based on evaluation of the commercial objectives of the contracts.

Certain of the Company's customer contracts allow for termination for convenience, with advanced notice, without substantive termination penalty. In these cases, the Company has concluded the contract term is equal to the remaining noncancelable period. Such termination rights do not allow for refunds other than prepaid services. These provisions do not affect when the Company commences revenue recognition.

Contracts with Multiple Promises for Goods and Services

The Company engages in various contracts with promises for multiple goods and services, which may generate revenue across any of the sources noted above.

In certain contracts, the Company recognizes its proprietary software, software license, technical support, maintenance, consulting services, sponsored development services, training, results of sequencing and molecular analysis, certain professional services, and other software-related services as distinct performance obligations.

Standalone selling prices ("SSP") are required to be allocated and revenue recognized for each distinct performance obligation within each contract. Judgment is required to determine the SSP for each distinct performance obligation. The SSP for each performance obligation is determined by considering contracts in which the good or service is sold separately and other factors, including market conditions and the Company's experience selling similar goods and services, as well as costs and margins achieved. In some cases, to estimate the SSP, the Company first estimates the selling price of each performance obligation for which an SSP is observable and then estimates the SSP of the remaining performance obligation as the residual contractual amount.

Generally, consulting and sponsored development professional services do not involve significant integration or customization of the OpenNMS software. As such, consulting and sponsored development are considered distinct performance obligations.

The Company has reseller arrangements, and for each promised good or service, the Company evaluates whether it is a principal or an agent. The Company assesses control in terms of relevant indicators of performance, inventory, and pricing risk, such as which party negotiates pricing with the end customer and which party is ultimately responsible for fulfilling services, transferring goods and services, and ensuring support.

Cost of Revenue

Cost of revenue includes associated salaries and fringe benefits, stock-based compensation, consultant costs, direct reimbursable travel expenses, depreciation related to software developed for internal use, depreciation related to lab equipment, and other direct engagement costs associated with the design, development, sale and installation of systems, including system support and maintenance services for customers. System support includes ongoing customer assistance for software updates and upgrades, installation, training and functionality. All service costs, except development of internal use software and deferred implementation costs, are expensed when incurred. Amortization of deferred implementation costs are also included in cost of revenue. Cost of revenue associated with each of the Company's revenue sources consists of the following types of costs:

- **Software-as-a-service related** - SaaS related cost of revenue includes personnel-related costs, amortization of deferred implementation costs, amortization of internal-use software, and other direct costs associated with the delivery and hosting of the Company's subscription services.
- **Maintenance** - Maintenance cost of revenue includes personnel-related costs, amortization of internal-use software, and other direct costs associated with the ongoing support or maintenance provided to the Company's customers.
- **Professional services** - Professional services cost of revenue include personnel-related costs and other direct costs associated with consulting, sponsored development, and training provided to the Company's customers.

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- **Sequencing and molecular analysis** - Sequencing and molecular analysis cost of revenue includes personnel-related costs associated with fulfillment of these services, including those of our subsidiary, NantHealth Labs, and amounts due to NantOmics under the reseller agreement (see Note 19) for the sequencing and molecular analysis of DNA and RNA (and previously proteomic results). It also includes amortization of internal-use software and lab equipment.
- **Home health care services** - Home health care services cost of revenue includes direct expenses relating to the Company's nursing and therapy services provided to patients in a home care setting. On June 7, 2019, the Company completed the divestiture of its home health care services business (see Note 4).

Selling, General and Administrative Expenses

Selling, general and administrative expense consists primarily of personnel-related expenses for the Company's sales and marketing, finance, legal, human resources, administrative personnel, stock-based compensation, advertising and marketing promotions of NantHealth solutions, and corporate shared services fees from NantWorks. This includes amortization of deferred commission costs. It also includes trade show and event costs, sponsorship costs, point of purchase display expenses and related amortization as well as legal costs, facility costs, consulting and professional fees, insurance and other corporate and administrative costs.

Research and Development Expenses

Research and development ("R&D") costs incurred to establish the technological feasibility of software to be sold are expensed as incurred. These expenses include the costs of the Company's proprietary R&D efforts, as well as costs incurred in connection with certain licensing arrangements.

Research and development expense consist primarily of personnel-related costs for employees working on development of solutions, including salaries, benefits, and stock-based compensation. Also included are non-personnel costs such as consulting and professional fees to third-party development resources.

Substantially all of the Company's research and development expenses are related to developing new software solutions and improving its existing software solutions.

These costs incurred in the research and development of new software products and maintenance to existing software products are expensed as incurred. These costs are associated with both the preliminary project stage and post-implementation stage of internal-use software. Qualifying costs associated with the application development stage are capitalized.

Stock-Based Compensation

The Company accounts for stock-based compensation arrangements granted to employees in accordance with ASC 718, *Compensation—Stock Compensation*, by measuring the grant date fair value of the award and recognizing the resulting expense over the period during which the employee is required to perform service in exchange for the award.

The Company accounts for stock-based compensation arrangements issued to nonemployees using the fair value approach prescribed by ASC 505-50, *Equity-Based Payments to Non-Employees*. Prior to January 1, 2019 when the Company adopted ASU No. 2018-07, *Improvement to nonemployee share-based payment accounting*, the value of nonemployee stock-based compensation was re-measured at the end of each reporting period until the award vests and is recognized as stock-based compensation expense over the period during which the nonemployee provides the services. After the adoption of ASU No. 2018-07, the value of nonemployee stock-based compensation is measured at the grant date fair value of the award and the resulting expense is recognized over the period during which the nonemployee provides the services.

Stock-based compensation expense for both employee and nonemployee awards is recognized on a straight-line basis over the appropriate service period for awards that are only subject to service conditions and is recognized using the accelerated attribution method for awards that are subject to performance conditions. Stock-based compensation expense is only recognized for awards subject to performance conditions if it is probable that the performance condition will be achieved.

All excess tax benefits and tax deficiencies are recognized as income tax benefit or expense in the income statement as discrete items in the reporting period in which they occur, and such tax benefits and tax deficiencies are not included in the estimate of an entity's annual effective tax rate, applied on a prospective basis. The recognition of excess tax benefits is not deferred until the benefit is realized through a reduction to taxes payable. When the Company applies the treasury stock method in calculating diluted earnings per share, excess tax benefits, if applicable, and deficiencies from the calculation of assumed proceeds are excluded since such amounts are recognized in the income statement. Excess tax benefits if applicable, are classified as operating activities in the same manner as other cash flows related to income taxes on the statement of cash flows.

The Company has elected to account for forfeitures when they occur. Cash paid by the Company when directly withholding shares for tax withholding purposes is classified as a financing activity in the Consolidated Statements of Cash Flows (see Note 15 and Note 17).

For information regarding the Company's Phantom Unit Plan and 2016 Equity Incentive Plan, see Note 17.

Change in Fair Value of Derivative Liability

The Company has classified the interest make-whole provision of its convertible notes and related party convertible note due December 2021 and issued in December 2016 as a derivative liability as part of other liabilities and related party liabilities, respectively, in the Consolidated Balance Sheets and is recorded at fair value. This derivative liability is subject to re-measurement at each balance sheet date, and the Company recognizes any change in fair value within other income/expense, net in the Company's Consolidated Statements of Operations. The change in the fair value of this derivative liability is primarily due to the change in the value of the Company's common stock (see Note 12).

Change in Fair Value of Bookings Commitment

The Company has classified the Bookings Commitment assumed upon the disposal of the provider/patient engagement solutions business described in Note 12 as part of accrued and other current liabilities and other liabilities in the Consolidated Balance Sheets. This liability is subject to re-measurement at each balance sheet date, and the Company recognizes any changes in fair value within other income/expense, net. The fair value of the liability is estimated using a Monte Carlo Simulation model to calculate average payments due under the Bookings Commitment, based on management's estimate of its performance in securing bookings and resulting annual payments, discounted at the cost of debt based on a yield curve. The change in the fair value of this liability is primarily due to changes in the costs of debt based on a yield curve and the passage of time (see Note 12).

Management believes the assumptions used on projected financial information is reasonable, but those assumptions require judgment and are forward looking in nature. However, actual results may differ materially from those projections. The fair value of the Bookings Commitment is most sensitive to management's estimate of the discount rate applied to present value the liability. If the discount rate applied was 2% lower at December 31, 2020, the fair value of the liability would increase by \$4,344.

Income Taxes

The Company records the federal and state tax provision of the consolidated group and foreign tax provision of its foreign subsidiaries.

ASC 740, *Income Taxes*, provides the accounting treatment for uncertainty in income taxes recognized in an enterprise's financial statements. ASC 740 prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. ASC 740 also provides guidance on derecognizing, classification, interest and penalties, accounting in interim periods, disclosure, and transition.

As part of the process of preparing its Consolidated Financial Statements, the Company is required to estimate its provision for income taxes in each of the tax jurisdictions in which the Company conducts business. This process involves estimating the actual current tax expense in conjunction with the evaluation and measurement of temporary differences resulting from differing treatment of certain items for tax and accounting purposes. These temporary differences result in the establishment of deferred tax assets and liabilities, which are recorded on a net basis and included in the Company's Consolidated Balance Sheets. The Company then evaluates on a periodic basis the probability that the net deferred tax assets will be recovered and therefore realized from future taxable income and to the extent the Company believes that recovery is not more likely than not, a valuation allowance is established to address such risk resulting in an additional related provision for income taxes during the period.

Significant management judgment is required in determining its provision for income taxes, its deferred tax assets and liabilities, tax contingencies, unrecognized tax benefits, and any required valuation allowance, including taking into consideration the probability of the tax contingencies being incurred. Management assesses this probability based upon information provided by its tax advisers, its legal advisers and similar tax cases. If at a later time its assessment of the probability of these tax contingencies changes, its accrual for such tax uncertainties may increase or decrease.

The Company has a valuation allowance due to management's overall assessment of risks and uncertainties related to its future ability to realize and, hence, utilize certain deferred tax assets, primarily consisting of net operating losses ("NOLs"), carry forward temporary differences and future tax deductions.

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The effective tax rate for annual and interim reporting periods could be impacted if uncertain tax positions that are not recognized are settled at an amount which differs from the Company's estimate. Finally, if the Company is impacted by a change in the valuation allowance resulting from a change in judgment regarding the realizability of deferred tax assets, such effect will be recognized in the interim period in which the change occurs.

Net Income (Loss) Per Share

Basic net income (loss) per common share attributable to NantHealth is computed by dividing the net income (loss) attributable to NantHealth by the weighted average number of shares of common stock outstanding during the respective periods, without consideration of common stock equivalents. Diluted net income (loss) per common share attributable to NantHealth is computed by dividing the net income (loss) attributable to NantHealth by the weighted average number of shares of common stock outstanding during the respective periods, adjusted to give effect to potentially dilutive securities. However, potentially dilutive securities are excluded from the computation of diluted net income (loss) per common share attributable to NantHealth to the extent that their effect is anti-dilutive. If there is a net loss from continuing operations attributable to NantHealth, diluted net income (loss) per share attributable to NantHealth is computed in the same manner as basic net income (loss) per share attributable to NantHealth is computed, even if the Company reports net income as a result of discontinued operations attributable to NantHealth. The Company applies treasury method in calculating weighted average dilutive number of shares for its stock plans.

Foreign Currency Translation

The Company has operations and holds assets in various foreign countries. The local currency is the functional currency for the Company's subsidiaries in the United Kingdom, Canada and Singapore. Assets and liabilities are translated at end-of-period exchange rates while revenues and expenses are translated at the average exchange rates in effect during the period. Equity is translated at historical rates and the resulting cumulative translation adjustments are included as a component of accumulated other comprehensive income/loss until the translation adjustments are realized.

Segment Reporting

The chief operating decision maker for the Company is its Chief Executive Officer. The Chief Executive Officer reviews financial information presented on a consolidated basis for purposes of allocating resources and evaluating financial performance. The Company has one business activity and there are no segment managers who are held accountable for operations, operating results, or plans for levels or components below the consolidated unit level. Accordingly, management has determined that the Company operates in one reportable segment.

Leases

The Company determines if an arrangement is a lease at inception. Operating leases are included in operating lease right-of-use ("ROU") assets, other current liabilities, and operating lease liabilities in the Consolidated Balance Sheets. Finance leases are included in property, plant, and equipment, net, other current liabilities, and other liabilities in the Consolidated Balance Sheets. The Company currently does not have any finance leases.

Operating lease ROU assets and operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. The Company's leases do not provide an implicit rate; therefore, the Company uses the incremental borrowing rate based on the information available at commencement date, or at January 1, 2019 for the Company's leases on transition to ASC 842, in determining the present value of future payments. The operating lease ROU asset excludes lease incentives and initial direct costs incurred. The lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term.

The Company has lease agreements with lease and non-lease components. For data center leases and real estate leases, the Company accounts for the lease and non-lease components as a single lease component.

The Company treats data center leases with lease terms of less than one year as short-term leases and recognizes the lease expense straight-line over the lease term.

Business Combinations

Business combinations are accounted for using the acquisition method of accounting. Under the acquisition method, assets acquired and liabilities assumed are recorded at their respective fair values as of the acquisition date. Any excess of the purchase price over the estimated fair values of the net assets acquired is recorded as goodwill. Management routinely monitors the factors impacting the acquired assets and liabilities. Transaction related costs are expensed as incurred. The operating results of the acquired business are reflected in the Company's Consolidated Financial Statements as of the acquisition date.

Fair Value of Financial Instruments

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value measurements are classified and disclosed in one of the following three categories:

- Level 1—Quoted prices for identical assets or liabilities in active markets;
- Level 2—Quoted prices for similar assets or liabilities in active markets or quoted prices for identical or similar assets or liabilities in markets that are not active or are directly or indirectly observable; and
- Level 3—Unobservable inputs that reflect estimates and assumptions.

The carrying amounts reported in the Consolidated Balance Sheets for cash and cash equivalents, accounts receivable, accounts payable, notes payable, deferred revenue, and other current monetary assets and liabilities approximate fair value because of the immediate or short-term maturity of these financial instruments.

In accordance with this guidance, the Company measures its cash equivalents at fair value. The Company's cash equivalents are classified within Level 1.

The Company's fair value estimate of the Bookings Commitment and convertibles notes and interest make-whole provision of the convertible notes are based on Level 3 inputs.

Cash and Cash Equivalents

The Company considers all unrestricted, highly liquid investments with an initial maturity of three months or less to be cash equivalents. These amounts are stated at cost, which approximates fair value. At December 31, 2020 and 2019, cash equivalents were deposited in financial institutions and consisted of immediately available fund balances. Cash and cash equivalents are maintained at stable financial institutions, generally at amounts in excess of federally insured limits, which represents a concentration of credit risk. The Company has not experienced any losses on deposits of cash and cash equivalents to date.

Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable are recorded at the invoiced amount, net of allowances for doubtful accounts. The allowance for doubtful accounts is based on management's assessment of the collectibility of accounts. The Company regularly reviews the adequacy of the allowance for doubtful accounts by considering the age of each outstanding invoice and the collection history of each customer to determine whether a specific allowance is appropriate. Accounts receivable deemed uncollectible are charged against bad debt expense when identified.

Concentrations of Risk

The following table summarizes the number of customers that individually comprise greater than 10% of revenues and/or 10% of accounts receivable, and their aggregate percentages of total revenues and total billed and unbilled accounts receivable:

Period	Significant Customers	Percentage of Total Revenues ⁽¹⁾				Percentage of Total Accounts Receivable ⁽¹⁾				
		A	B	C	E	B	C	D	F	G
Year Ended December 31, 2020	6	17.5 %	15.5 %	14.9 %	11.2 %	20.7 %	— %	23.3 %	— %	10.6 %
Year Ended December 31, 2019	4	16.8 %	13.8 %	12.9 %	— %	13.7 %	17.4 %	— %	15.4 %	— %

⁽¹⁾ Amounts less than 10% are not disclosed.

Insurance Recoveries

The Company records probable insurance recoveries gross of related liabilities. The income and expense related to these amounts are recorded net in selling, general and administrative expenses. If the recoveries exceed the loss recognized in the financial statements, such recoveries are recorded in other income, net once any contingencies relating to the insurance claim have been resolved.

Property, Plant and Equipment, net

Property, plant and equipment received in connection with business combinations are recorded at fair value. Property, plant and equipment acquired in the normal course of business are recorded at cost. Depreciation is computed on a straight-line basis over the estimated useful lives of the related assets (see Note 7). Maintenance and repairs are charged to expense as incurred while expenditures for refurbishments and improvements that significantly add to the productive capacity or extend the useful life of an asset are capitalized. Property, plant and equipment is tested for impairment, and depreciation estimates and methods are reviewed, whenever events or changes in circumstances indicate that its carrying amount may not be recoverable.

Internal-Use Software

The Company accounts for the costs of computer software obtained or developed for internal use in accordance with ASC 350, *Intangibles—Goodwill and Other*. Computer software development costs are expensed as incurred, except for internal-use software costs that qualify for capitalization, and include employee related expenses, including salaries, benefits and stock-based compensation expenses; costs of computer hardware and software; and costs incurred in developing features and functionality. These capitalized costs are included in property and equipment in the Consolidated Balance Sheets. The Company expenses costs incurred in the preliminary project and post implementation stages of software development and capitalizes qualifying costs incurred in the application development stage and costs associated with significant enhancements to existing internal-use software applications. Software costs are amortized using the straight-line method over an estimated useful life of three years commencing when the software project is ready for its intended use. Internal-use software is tested for impairment where assets are grouped at the lowest level for which there are identifiable cash flows that are largely independent of the cash flows of other groups of assets whenever events or changes in circumstances indicate that its carrying amount may not be recoverable.

Goodwill and Intangible Assets

Goodwill acquired in a business combination and determined to have an indefinite useful life is not amortized but is tested for impairment annually as of October 1 or between annual tests when an impairment indicator exists. In the event there is a change in reporting units or segments, the Company will test for impairment at the reporting unit. A component of an operating segment is a reporting unit if the component constitutes a business for which discrete financial information is available and segment management regularly reviews the operating results of that component.

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As part of the annual impairment test, the Company may conduct an assessment of qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. In a qualitative assessment, the Company would consider the macroeconomic conditions, including any deterioration of general conditions, industry and market conditions, including any deterioration in the environment where the reporting unit operates, increased competition, changes in the products/services and regulator and political developments; cost of doing business; overall financial performance, including any declining cash flows and performance in relation to planned revenues and earnings in past periods; other relevant reporting unit specific facts, such as changes in management or key personnel or pending litigation, and events affecting the reporting unit, including changes in the carrying value of net assets.

If an optional qualitative goodwill impairment assessment is not performed, the Company is required to determine the fair value of each reporting unit. If a reporting unit's carrying value is in excess of its fair value, such excess is recorded as an impairment loss. Under the accounting guidance, there is no requirement to perform a qualitative assessment for reporting units with zero or negative carrying values.

Accounting guidance requires that definite-lived intangible assets be amortized over their respective estimated useful lives and reviewed for impairment whenever events or changes in circumstances indicate that their carrying amounts may not be recoverable. Amortization of finite-lived intangible assets is provided over their estimated useful lives on a straight-line basis or the pattern in which economic benefits are consumed, if reliably determinable. If the estimates of the useful lives change, the Company amortizes the remaining book value over the remaining useful lives or, if an asset is deemed to be impaired, a write-down of the value of the asset to its fair value may be required at such time. The Company reviews its finite-lived intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable.

Investment in Related Party

Investment in and advances to a related party in which the Company has a substantial ownership interest of approximately 20% to 50%, or for which the Company exercises significant influence but not control over policy decisions, are accounted for by the equity method. An investment in a limited liability company that is similar to a partnership is also accounted for under the equity method if more than minor influence over the operation of the investee exists (generally through more than 3-5% ownership). As part of that accounting, the Company recognizes gains and losses that arise from the issuance of stock by a related party that results in changes in the Company's proportionate share of the dollar amount of the related party's equity.

Investment in related party is assessed for possible impairment when events indicate that the fair value of the investment may be below the Company's carrying value. When such a condition is deemed to be other than temporary, the carrying value of the investment is written down to its fair value, and the amount of the write-down is included in net loss. In making the determination as to whether a decline is other than temporary, the Company considers such factors as the duration and extent of the decline, the investee's financial performance, and the Company's ability and intention to retain its investment for a period that will be sufficient to allow for any anticipated recovery in the investment's market value. The new cost basis of investments in these equity investees is not changed for subsequent recoveries in fair value.

In the case of the Company's related party investee, NantOmics, a privately held limited liability company, the fair value of the related party equity method investment would be determined using the income approach. The income approach utilizes a discounted cash flow model incorporating management's expectations of the investee's future revenue, operating expenses, and earnings before interest, taxes, depreciation and amortization, capital expenditures and an anticipated tax rate. The related cash flow forecasts are discounted using an estimated weighted-average cost of capital ("WACC") at the date of valuation.

The Company believes the assumptions on projected financial information are reasonable, but those assumptions require judgment and are forward looking in nature. However, actual results may differ materially from those projections. The most impactful assumptions would include estimated revenues, estimated EBITDA margins and the WACC, as these three estimates represent the most significant drivers of the estimated fair value under the discounted cash flow model. It is reasonably possible that the estimate of the impairment will change in the near term if future NantOmics revenues are subsequently materially lower than expected; if significant adverse changes were to occur in its operating environment; if future EBITDA margins are materially lower than expected; if the Company was to determine that the WACC used in a future discounted cash flow model would need to be significantly increased; and/or if changes in other assumptions were to happen.

Qualitative matters that may impact the Company's estimates of the fair value of its equity investment in NantOmics include assumptions regarding the timing and ramp of provider, payer and pharma adoption of genomic and proteomic technology, intellectual property or services, accompanying market pricing pressures on its GPS Cancer test and resultant impact on amounts owed by the Company under a reseller arrangement to NantOmics, potential success of alternate diagnostic testing solutions from competitors, regulatory impacts, technological shifts and advances in diagnostic testing for cancer, and laboratory operational matters that may impact NantOmics' ability to deliver its services in sufficient scale.

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Risks and uncertainties are related to assumptions regarding future financial performance, commercial acceptance of product and service offerings, risk of reimbursement for the Company's sequencing and molecular analysis solution, developments in the healthcare and molecular diagnostics industry, NantOmics' ability to integrate its business acquisitions, regulatory risks, and other general business risks including unanticipated adverse changes in NantOmics' operating environment.

The Company previously determined that other-than-temporary impairments in the full remaining carrying value of the investment in NantOmics have occurred (see Note 10). After the Company's equity method investment in NantOmics was reduced to zero, the Company no longer applies the equity method to record additional losses until NantOmics subsequently reports net income and that net income equals the share of net losses not recognized during the period the equity method was suspended.

Differences between the Company's carrying value of an equity investment and its underlying equity in the net assets of the related party are assigned to the extent practicable to specific assets and liabilities based on the Company's analysis of the various factors giving rise to the difference. When appropriate, the Company's share of the related party's reported earnings is adjusted quarterly to reflect the difference between these allocated values and the related party's historical book values.

Deferred Revenue

The Company records deferred revenue when it receives cash from clients prior to meeting the applicable revenue recognition criteria. The Company uses judgment in determining the period over which the deliverables are recognized as revenue. As of December 31, 2020 and 2019, current and non-current deferred revenue are comprised of deferrals for fees related to SaaS arrangements, technical support and maintenance, services and other revenue. Non-current deferred revenue as of December 31, 2020 is expected to be recognized in a period more than 12 months after that date.

Recently Adopted Accounting Pronouncements

In November 2020, the SEC issued Release No. 33-10890, *Amendments to Management's Discussion and Analysis, Selected Financial Data, and Supplementary Financial Information*, to modernize, simplify, and enhance certain financial disclosure requirements in Regulation S-K. Mandatory compliance for this SEC release is required for fiscal periods ending on or after August 9, 2021. The Company adopted Item 303(a)(5), *Contractual Obligations*, which no longer requires the registrant to provide a contractual obligation table. The Company's adoption of the remaining items is expected to impact the Company's fiscal 2021 Form 10-K disclosures and will not have a material impact on the Consolidated Financial Statements.

In August 2020, the SEC issued Release No. 33-10825, *Modernization of Regulation S-K Items 101, 103 and 105*, with the intent of improving the readability of disclosure documents and simplifying compliance for registrants. This amendment became effective on November 9, 2020. The adoption of this guidance impacted the Company's disclosures in Item 1 of this Annual Report and did not have any impact on the Consolidated Financial Statements.

Effective January 1, 2020, the Company adopted ASU No. 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Value Measurement ("ASU 2018-13")*, which modifies the disclosure requirements on fair value measurements. The adoption of this guidance has no impact on the Consolidated Financial Statements.

Effective January 1, 2020, the Company adopted, on a prospective basis, ASU No. 2018-15, *Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*, which aligns the requirement for capitalizing implementation costs incurred by a customer in a cloud computing arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software and hosting arrangements that include an internal-use software license. The adoption of this guidance did not have a material impact on the Consolidated Financial Statements.

In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*, to simplify the accounting for income taxes. The new guidance eliminates certain exceptions related to the approach for intraperiod tax allocation, the methodology for calculating income taxes in an interim period and the recognition of deferred tax liabilities for outside basis differences. It also simplifies aspects of the accounting for franchise taxes and enacted changes in tax laws or rates and clarifies the accounting for transactions that result in a step-up in the tax basis of goodwill. This ASU is effective for the Company's annual and interim periods beginning in January 1, 2021, and early adoption is permitted. The Company early adopted, on a prospective basis, this ASU in the first quarter of 2020. One of the provisions in this ASU is the change from the intraperiod tax allocation exception in ASC 740-20-45-7 to the incremental approach when there is a current period loss from continuing operations. ASU No. 2019-12 removed this exception, which impacted the Company's tax provision for (benefit from) income taxes between continuing operations and discontinued operations.

Upcoming Accounting Standard Pronouncements

In August 2020, the FASB issued ASU No. 2020-06, *Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40)*. This update simplifies the accounting for convertible instruments by eliminating the cash conversion and beneficial conversion feature models which require separate accounting for embedded conversion features. This update also amends the guidance for the derivatives scope exception for contracts in an entity's own equity to reduce form-over-substance-based accounting conclusions and requires the application of the if-converted method for calculating diluted earnings per share. ASU No. 2020-06 is effective for fiscal periods beginning after December 15, 2023. Early adoption is permitted. The Company is currently evaluating the effects of this ASU.

In June 2016, the FASB issued ASU No. 2016-13, *Measurement of Credit Losses on Financial Instruments*, which changes how companies measure credit losses on most financial instruments measured at amortized cost, such as loans, receivables and held-to-maturity debt securities. Rather than generally recognizing credit losses when it is probable that the loss has been incurred, the revised guidance requires companies to recognize an allowance for credit losses for the difference between the amortized cost basis of a financial instrument and the amount of amortized cost that the Company expects to collect over the instrument's contractual life. ASU No. 2016-13 is effective for fiscal periods beginning after December 15, 2022 and must be adopted as a cumulative effect adjustment to retained earnings. Early adoption is permitted. The Company is still evaluating the effects of this ASU.

Other recent accounting pronouncements issued by the FASB (including its Emerging Issues Task Force), the American Institute of Certified Public Accountants, and the SEC did not have, nor are believed by management to have, a material impact on the Company's present or future Consolidated Financial Statements.

Note 3. Revenue Recognition

Contract Balances

The Company records deferred revenue when cash payments are received, or payment is due, in advance of its fulfillment of performance obligations. There were revenues of \$7,105 and \$7,125 recognized during the years ended December 31, 2020 and 2019, respectively, that were included in the deferred revenue balance at the beginning of the period.

Assets Recognized from the Costs to Obtain a Contract with a Customer

The Company recognizes an asset for the incremental costs to obtain a contract with a customer, where the stated contract term, with expected renewals, is longer than one year. The Company amortizes these assets over the expected period of benefit. These costs are generally employee sales commissions, with amortization of the balance recorded in selling, general and administrative expenses. The value of these assets was \$1,321 and \$1,455 at December 31, 2020 and December 31, 2019, respectively, and amortization during the years ended December 31, 2020 and 2019 was \$934 and \$815, respectively.

Where management is not able to conclude that the costs of a contract will be recovered, costs to obtain the contract are expensed as incurred.

Performance Obligations

As of December 31, 2020, the Company has allocated a total transaction price of \$2,631 to unfulfilled performance obligations that are expected to be fulfilled within nine years. Excluded from this amount are contracts of less than one year and variable consideration that relates to the value of services provided.

Note 4. Discontinued Operations and Divestitures

Discontinued Operations

Sale of Connected Care Business

On January 13, 2020, the Company entered into an asset purchase agreement (the "Purchase Agreement") with Masimo Corporation ("Masimo"), VCCB Holdings, Inc., a wholly owned subsidiary of Masimo (collectively with Masimo, the "Purchaser"), and, solely with respect to certain provisions of the Purchase Agreement, NantWorks, LLC, an affiliate of the Company. Pursuant to the Purchase Agreement, the Company agreed to sell to the Purchaser certain of its assets related to its Connected Care business, including the products known as DCX (formerly DeviceConX), VCX (formerly VitalsConX), HBox and Shuttle Cable (collectively, the "Connected Care Business").

On February 3, 2020, the Company completed the sale of the Connected Care Business for \$47,250 of cash consideration in exchange for assets primarily related to the Connected Care Business (as defined under the terms of the Purchase Agreement). The cash consideration is subject to adjustment based upon the final amount of working capital as of the closing date.

The sale of the Connected Care Business qualified as a discontinued operation because it comprised operations and cash flows that could be distinguished, operationally and for financial reporting purposes, from the rest of the Company. The disposal of the Connected Care Business, which represented the Company's medical device interoperability solutions, represented a strategic shift in the Company's operations as the sale enables the Company to focus on clinical decision support, payer engagement, and molecular analysis.

The total gain on sale of the Connected Care Business consisted of the following:

Cash received as consideration	\$	47,250
Less: Costs to sell		(849)
Less: Carrying value of net assets sold		(14,190)
Gain on sale of the Connected Care Business	\$	32,211

The carrying amounts of the major classes of assets and liabilities of the Company's discontinued operation as of December 31, 2019 were as follows:

		December 31, 2019
Accounts receivable, net	\$	4,739
Inventories		798
Prepaid expenses and other current assets		790
Current assets of discontinued operation		6,327
Property, plant, and equipment, net		1,110
Goodwill		18,623
Operating lease right-of-use assets		1,603
Total assets of discontinued operation	\$	27,663
Accounts payable	\$	574
Accrued and other current liabilities		456
Deferred revenue		9,650
Current liabilities of discontinued operation		10,680
Deferred revenue, net of current		157
Deferred income taxes, net		210
Operating lease liabilities		1,282
Total liabilities of discontinued operation	\$	12,329

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The operating results of the Company's discontinued operation are as follows:

	Year Ended December 31,	
	2020	2019
Major classes of line items constituting pretax income (loss) of discontinued operations		
Net revenue	\$ 1,165	\$ 18,534
Cost of revenue	(467)	(4,286)
Selling, general and administrative	(532)	(5,449)
Research and development	(601)	(5,138)
Other expense, net	(5)	(18)
Pretax (loss) income from discontinued operations related to major classes of pretax income (loss)	(440)	3,643
Pretax gain on sale of the Connected Care Business	32,211	—
Total pretax income from discontinued operations	31,771	3,643
(Benefit from) provision for income taxes	(262)	906
Total income from discontinued operations, net of tax	<u>\$ 32,033</u>	<u>\$ 2,737</u>

The significant operating and investing cash and noncash items of the discontinued operation included in the Consolidated Statements of Cash Flows for the year ended December 31, 2020 and 2019 were as follows:

	Year Ended December 31,	
	2020	2019
Cash flows from operating activities:		
Depreciation and amortization	\$ 10	\$ 395
Gain on sale of the Connected Care Business	32,211	—
Cash flows from investing activities:		
Net proceeds from sale of the Connected Care Business	46,401	\$ —
Purchases of property and equipment, including internal-use software	76	409

Divestitures

Sale of Home Health Care Services Business

On June 7, 2019, the Company completed the divestiture of its home health care services business in exchange for cash proceeds of \$300, which resulted in a loss on sale of business of \$582. The home health care services business does not qualify as a discontinued operation as its divestiture does not represent a strategic shift that has had a major impact on the Company's operations or financial results.

Note 5. Accounts Receivable, net

Accounts receivable are included in the Consolidated Balance Sheets net of the allowance for doubtful accounts. A summary of activity in the allowance for doubtful accounts for the years ended December 31, 2020 and 2019 is as follows:

	Balance at beginning of the period	Additions to expense	(Write offs) / Recoveries	Balance at end of the period
Year ended December 31, 2020	\$ 95	40	(91)	\$ 44
Year ended December 31, 2019	\$ 94	16	(15)	\$ 95

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Note 6. Prepaid Expenses and Other Current Assets and Accrued and Other Current Liabilities

Prepaid expenses and other current assets as of December 31, 2020 and 2019 consisted of the following:

	December 31,	
	2020	2019
Prepaid expenses	\$ 2,268	\$ 1,794
Securities litigation insurance receivable	253	16,627
Other current assets	983	920
Prepaid expenses and other current assets	<u>\$ 3,504</u>	<u>\$ 19,341</u>

Accrued and other current liabilities of December 31, 2020 and 2019 consisted of the following:

	December 31,	
	2020	2019
Payroll and related costs	\$ 7,247	\$ 8,106
Securities litigation expense payable	253	17,127
Operating lease liabilities	1,900	1,617
Other accrued and other current liabilities	4,575	5,138
Accrued and other current liabilities	<u>\$ 13,975</u>	<u>\$ 31,988</u>

Note 7. Property, Plant and Equipment, net

Property, plant and equipment, net as of December 31, 2020 and 2019 consisted of the following:

	Useful life (in years)	December 31,	
		2020	2019
Computer equipment and software	3 - 5	\$ 12,332	\$ 12,144
Furniture and equipment	5 - 7	1,168	2,292
Leasehold and building improvements ⁽¹⁾		4,282	7,160
Property, plant, and equipment, excluding internal-use software		17,782	21,596
Less: Accumulated depreciation and amortization		(12,837)	(17,078)
Property, plant and equipment, excluding internal-use software, net		4,945	4,518
Internal-use software	3	38,488	33,278
Construction in progress - Internal-use software		1,616	2,973
Less: Accumulated depreciation and amortization - internal-use software		(31,947)	(25,784)
Internal-use software, net		8,157	10,467
Property, plant and equipment, net		<u>\$ 13,102</u>	<u>\$ 14,985</u>

⁽¹⁾ Useful lives for leasehold and building improvements represent the term of the lease or the estimated life of the related improvements, whichever is shorter.

Depreciation expense from continuing operations was \$7,394 and \$12,276 for the years ended December 31, 2020 and 2019, respectively, of which \$5,743 and \$9,028, respectively, related to internal-use software costs.

Amounts capitalized to internal-use software related to continuing operations for the years ended December 31, 2020 and 2019 were \$3,437 and \$3,800, respectively.

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In the fourth quarter of 2020, the Company's discussions with and exploration of potential opportunities for its sequencing and molecular analysis solutions indicated that certain internal-use software developed by the Company related to its GPS Cancer product would not be utilized in those arrangements. As a result, the Company determined that the carrying value of these internal-use software assets was not recoverable as of December 31, 2020 and recorded an impairment loss of \$729 within impairment of intangible assets, including internal-use software.

Note 8. Intangible Assets, net

The Company's definite-lived intangible assets as of December 31, 2020 and 2019 consisted of the following:

	December 31, 2020				
	Customer Relationships	Developed Technologies	Trade Name	Installed User Base	Total
Gross carrying amount	\$ 53,000	\$ 34,500	\$ 3,300	\$ 1,400	\$ 92,200
Accumulated amortization	(17,528)	(23,343)	(3,088)	(272)	(44,231)
Intangible assets, net	<u>\$ 35,472</u>	<u>\$ 11,157</u>	<u>\$ 212</u>	<u>\$ 1,128</u>	<u>\$ 47,969</u>
	December 31, 2019				
	Customer Relationships	Developed Technologies	Trade Name	Installed User Base	Total
Gross carrying amount	\$ 52,000	\$ 32,000	\$ 3,000	—	\$ 87,000
Accumulated amortization	(13,866)	(18,286)	(3,000)	—	(35,152)
Intangible assets, net	<u>\$ 38,134</u>	<u>\$ 13,714</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 51,848</u>

Amortization of definite-lived intangible assets is provided over their estimated useful lives on a straight-line basis or the pattern in which economic benefits are consumed, if reliably determinable. The Company reviews its definite-lived intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Amortization expense from continuing operations was \$8,431 and \$8,878 for the years ended December 31, 2020 and 2019, respectively.

At July 22, 2020, the Company recorded \$5,200 of definite-lived intangible assets and accumulated amortization of \$647 related to the assignment of OpenNMS (see Note 19). These intangible assets are amortized over a period of 4 to 6 years.

During the three months ended June 30, 2019, the Company identified an indicator of impairment with respect to the NantHealth Labs definite-lived intangible assets given the decline in sales and the Company's decision to cease commercial sales of its liquid biopsy test offering to focus on performing a study to measure the clinical utility of the AR-V7 analyte for informing treatment in patients with castration-resistant prostate cancer. Although the Company will continue this study while also pursuing other strategically aligned clinical studies that support its liquid biopsy platform, the Company determined that the assets were not recoverable given the significant amount of costs required to further build evidence of clinical utility while also ceasing commercial sales of the Liquid GPS product. Therefore, the Company fully impaired the intangible assets as of June 30, 2019 and recorded an impairment loss of \$3,977 within operating expenses.

The estimated future amortization expense over the next five years and thereafter for the intangible assets that exist as of December 31, 2020 is as follows:

	Amounts
2021	\$ 8,930
2022	8,930
2023	4,346
2024	4,283
2025	4,147
Thereafter	17,333
Total future intangible amortization expense	<u>\$ 47,969</u>

Note 9. Goodwill

Goodwill as of December 31, 2020 and 2019 was \$98,333 and \$97,307, respectively, net of goodwill allocated to the discontinued operation of \$18,623. The goodwill allocated to the discontinued operation was based on the fair value of the Connected Care Business as a percentage of the total fair value of the Connected Care Business and the Company that remains after the sales transaction (see Note 4).

On July 22, 2020, the Company recognized \$1,026 of goodwill related to the assignment of OpenNMS (see Note 19).

The Company did not record any goodwill impairments in 2020 and 2019.

Note 10 Investments

Equity method investment

Investment in NantOmics

In 2015, the Company purchased a total of 169,074,539 Series A-2 units of NantOmics, a related party of the Company, for an aggregate purchase price of \$250,774. The Series A-2 units do not have any voting rights and, at the time of purchase, represented approximately 14.28% of NantOmics' issued and outstanding membership interests. NantOmics is majority owned by NantWorks and delivers molecular diagnostic capabilities with the intent of providing actionable intelligence and molecularly driven decision support for cancer patients and their providers at the point of care.

At February 28, 2018, the Company transferred 9,088,362 of the Series A-2 units to NantOmics as consideration for the assignment of NantHealth Labs (see Note 19). An additional 564,779 units were transferred by May 31, 2018. This reduced NantHealth's ownership of NantOmics to approximately 13.58%.

The Company applies the equity method to account for its investment in NantOmics as the interest in the equity is similar to a partnership interest. Further, the Company has the ability to exert significant influence over the operating and financial policies of the entity since NantWorks controls both NantHealth and NantOmics. The difference between the carrying amount of the investment in NantOmics and the Company's underlying equity in NantOmics' net assets relate to both definite and indefinite-lived intangible assets. At the time of the purchase, the Company attributed \$28,195 and \$14,382 of these differences to NantOmics' developed technologies and its reseller agreement with the Company, respectively, prior to the application of developed technology intangibles included in NantOmics net assets, and the remaining basis differences were attributed to goodwill. The Company amortizes the basis differences related to the definite-lived intangible assets over the assets' estimated useful lives and records these amounts as a reduction in the carrying amount of its investment and an increase in its equity method loss.

At June 30, 2020, the Company determined that an other-than-temporary-impairment of \$28,227, the full remaining carrying value of the Company's investment in NantOmics, had occurred, through observation of Level 3 inputs predominantly attributed to (i) limited progress by NantOmics in completing revenue generating transactions for paid molecular analysis services for the research and pharmaceutical industries; (ii) limited progress in completing licensing transactions for proprietary molecular analysis technologies and/or intellectual property of NantOmics; and (iii) the Company's decision to shift future laboratory operations in-house related to the GPS Cancer and Omics Core products to better control the supply chain and CMS reimbursement process, which the Company expects to result in reduced fees to NantOmics. Refer to Note 2 for the accounting policy for the assessment of the fair value and determination of other-than-temporary-impairments of the Company's investment in related party.

Pertaining to the Company's share of NantOmics' income or loss, amortization of basis differences, and other-than-temporary impairments, for the years ended December 31, 2020 and 2019, the Company recognized losses of \$31,702 and \$8,317, respectively.

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The Company reports its share of NantOmics' income or loss and the amortization of basis differences using a one quarter lag. As the Company's equity method investment in NantOmics was reduced to zero during the second quarter of 2020, the Company no longer applies the equity method as NantOmics continued to generate net losses.

The Company used the following summarized financial information for NantOmics for the trailing twelve months ended September 30, 2020 and 2019 to record its equity investment method losses, as applicable, for the years ended December 31, 2020 and 2019, respectively:

	Twelve Months Ended September 30,	
	2020	2019
Revenues	\$ 349	\$ 4,126
Gross loss	(1,641)	(3,653)
Loss from operations	(7,806)	(22,421)
Impairments on equity investments	—	(12,265)
Net loss	(2,618)	(29,695)
Net loss attributable to NantOmics	(2,559)	(29,317)
Other comprehensive income	—	502

Note 11. Convertible Notes

In December 2016, the Company entered into the Purchase Agreement with J.P. Morgan Securities LLC and Jefferies LLC, as representatives of the several initial purchasers named therein (collectively, the "Initial Purchasers"), to issue and sell \$90,000 in aggregate principal amount of its 5.50% senior convertible notes due 2021 ("Convertible Notes") in a private placement to qualified institutional buyers pursuant to Rule 144A under the Securities Act of 1933, as amended (the "Securities Act"), and to non-U.S. persons pursuant to Regulation S under the Securities Act. In December 2016, the Company entered into a purchase agreement (the "Cambridge Purchase Agreement") with Cambridge, an entity affiliated with Dr. Patrick Soon-Shiong, the Company's Chairman and Chief Executive Officer, to issue and sell \$10,000 in aggregate principal amount of the Convertible Notes in a private placement pursuant to an exemption from the registration requirements of the Securities Act afforded by Section 4(a)(2) of the Securities Act. In December 2016, pursuant to the exercise of the over-allotment by the Initial Purchasers, the Company issued an additional \$7,000 principal amount of the Convertible Notes. The total net proceeds from this offering were approximately \$102,714, comprised of \$9,917 from Cambridge and \$92,797 from the Initial Purchasers, after deducting the Initial Purchasers' discount and debt issuance costs of \$4,286 in connection with the Convertible Notes offering.

On December 21, 2016, the Company entered into an indenture, relating to the issuance of the Convertible Notes (the "Indenture"), by and between the Company and U.S. Bank National Association, as trustee (the "Trustee"). The interest rates are fixed at 5.50% per year, payable semi-annually on June 15th and December 15th of each year, beginning on June 15, 2017. The Convertible Notes will mature on December 15, 2021, unless earlier repurchased by the Company or converted pursuant to their terms.

In connection with the offering of the Convertible Notes, on December 15, 2016, the Company entered into a Second Amended and Restated Promissory Note which amended and restated the Amended and Restated Promissory Note, dated May 9, 2016, between the Company and NantCapital, to, among other things, extend the maturity date of the promissory note to June 15, 2022 and to subordinate such promissory note in right of payment to the Convertible Notes (see Note 19).

The initial conversion rate of the Convertible Notes is 82.3893 shares of common stock per \$1 principal amount of Convertible Notes (which is equivalent to an initial conversion price of approximately \$12.14 per share). Prior to the close of business on the business day immediately preceding September 15, 2021, the Convertible Notes will be convertible only under the following circumstances:

(1) during any calendar quarter commencing after March 31, 2017 (and only during such calendar quarter), if, for at least 20 trading days (whether or not consecutive) during the 30 consecutive trading day period ending on the last trading day of the immediately preceding calendar quarter, the last reported sale price of the Company's common stock on such trading day is greater than or equal to 120% of the conversion price on such trading day;

(2) during the five business day period after any five consecutive trading day period in which, for each day of that period, the trading price per \$1 principal amount of the Convertible Notes for such trading day was less than 98% of the product of the last reported sale price of the Company's common stock and the conversion rate on such trading day; or

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(3) upon the occurrence of specified corporate transactions as described in the Indenture agreement.

Upon conversion, the Convertible Notes will be settled in cash, shares of the Company's common stock or any combination thereof at the Company's option.

Upon the occurrence of a fundamental change (as defined in the Indenture), holders may require the Company to purchase all or a portion of the Convertible Notes in principal amounts of \$1 or an integral multiple thereof, for cash at a price equal to 100% of the principal amount of the Convertible Notes to be purchased plus any accrued and unpaid interest to, but excluding, the fundamental change purchase date. The conversion rate will be subject to adjustment upon the occurrence of certain specified events.

On or after the date that is one year after the last date of original issuance of the Convertible Notes, if the last reported sale price of the Company's common stock for at least 20 trading days (whether or not consecutive) during the period of 30 consecutive trading days ending within the five trading days immediately preceding a conversion date is greater than or equal to 120% of the conversion price on each applicable trading day, the Company will make an interest make-whole payment to a converting holder (other than a conversion in connection with a make-whole fundamental change in which the conversion rate is adjusted) equal to the sum of the present values of the scheduled payments of interest that would have been made on the Convertible Notes to be converted had such Convertible Notes remained outstanding from the conversion date through the earlier of (i) the date that is three years after the conversion date and (ii) the maturity date if the Convertible Notes had not been so converted. The present values of the remaining interest payments will be computed using a discount rate equal to 2.0%. The Company may pay any interest make-whole payment either in cash or in shares of its common stock, at the Company's election as described in the Indenture.

The Company accounts for convertible debt instruments that may be settled in cash upon conversion (including partial cash settlement) by recording the liability and equity components of the convertible debt separately. The liability component is computed based on the fair value of a similar liability that does not include the conversion option. The liability component includes both the value of the embedded interest make-whole derivative and the carrying value of the Convertible Notes. The equity component is computed based on the total debt proceeds less the fair value of the liability component. The equity component is also recorded as debt discount and amortized as interest expense over the expected term of the Convertible Notes.

The liability component of the Convertible Notes on the date of issuance was computed as \$83,079, consisting of the value of the embedded interest make-whole derivative of \$1,499 and the carrying value of the Convertible Notes of \$81,580. Accordingly, the equity component on the date of issuance was \$23,921. If the debt is considered current at the balance sheet date, the liability component of the convertible notes will be classified as current liabilities and presented in current portion of convertible notes debt and the equity component of the convertible debt will be considered a redeemable security and presented as redeemable equity in the Company's Consolidated Balance Sheet.

Offering costs of \$4,286 related to the issuance of the Convertible Notes were allocated to the liability and equity components in proportion to the allocation of the proceeds and accounted for as deferred financing offering costs and equity issuance costs, respectively. Approximately \$972 of this amount was allocated to equity and the remaining \$3,314 was capitalized as deferred financing offering costs.

The debt discounts and deferred financing offering costs on the Convertible Notes are being amortized to interest expense over the contractual terms of the Convertible Notes, using the effective interest method at an effective interest rate of 12.82%.

As of December 31, 2020, the remaining life of the Convertible Notes is approximately 12 months.

The following table summarizes how the issuance of the Convertible Notes is reflected in the Company's Consolidated Balance Sheets as of December 31, 2020 and 2019:

	Related party	Others	Total
Balance as of December 31, 2020			
Gross proceeds	\$ 10,000	\$ 97,000	\$ 107,000
Unamortized debt discounts and deferred financing offering costs	(589)	(6,422)	(7,011)
Net carrying amount	<u>\$ 9,411</u>	<u>\$ 90,578</u>	<u>\$ 99,989</u>
Balance as of December 31, 2019			
Gross proceeds	\$ 10,000	\$ 97,000	\$ 107,000
Unamortized debt discounts and deferred financing offering costs	(1,136)	(12,352)	(13,488)
Net carrying amount	<u>\$ 8,864</u>	<u>\$ 84,648</u>	<u>\$ 93,512</u>

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The following table sets forth the Company's interest expense incurred for the years ended December 31, 2020 and 2019:

	Year Ended December 31,					
	2020			2019		
	Related party	Others	Total	Related party	Others	Total
Accrued coupon interest expense	\$ 550	\$ 5,335	\$ 5,885	\$ 550	\$ 5,335	\$ 5,885
Amortization of debt discounts	533	5,197	5,730	473	4,571	5,044
Amortization of deferred financing offering costs	14	733	747	13	645	658
Total convertible notes interest expense	<u>\$ 1,097</u>	<u>\$ 11,265</u>	<u>\$ 12,362</u>	<u>\$ 1,036</u>	<u>\$ 10,551</u>	<u>\$ 11,587</u>

Note 12. Fair Value Measurements

Liabilities measured at fair value on a recurring basis as of December 31, 2020 and 2019 consisted of the following:

	December 31, 2020			
	Total fair value	Quoted price in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Liabilities				
Bookings Commitment	\$ 32,651	\$ —	\$ —	\$ 32,651
Interest make-whole derivative	4	—	—	4
	December 31, 2019			
	Total fair value	Quoted price in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Liabilities				
Bookings Commitment	\$ 21,983	\$ —	\$ —	\$ 21,983
Interest make-whole derivative	—	—	—	—

The Company's intangible assets and goodwill are initially measured at fair value and any subsequent adjustment to the initial fair value occurs only if an impairment charge is recognized.

Level 3 Inputs

Bookings Commitment

On August 3, 2017, the Company entered into an asset purchase agreement (the "APA") with Allscripts Healthcare Solutions, Inc. ("Allscripts"), pursuant to which the Company agreed to sell to Allscripts substantially all of the assets of the Company's provider/patient engagement solutions business, including the Company's FusionFX solution and components of its NantOS software connectivity solutions (the "Business"). On August 25, 2017, the Company and Allscripts completed the sale of the Business (the "Disposition") pursuant to the APA.

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Concurrent with the closing of the Disposition and as contemplated by the APA, (a) the Company and Allscripts modified the amended and restated mutual license and reseller agreement dated June 26, 2015, which was further amended on December 30, 2017, such that, among other things, the Company committed to deliver a minimum of \$95,000 of total bookings over a ten-year period ("Bookings Commitment") from referral transactions and sales of certain Allscripts products; (b) the Company and Allscripts each licensed certain intellectual property to the other party pursuant to a cross license agreement; (c) the Company agreed to provide certain transition services to Allscripts pursuant to a transition services agreement; and (d) the Company licensed certain software and agreed to sell certain hardware to Allscripts pursuant to a software license and supply agreement. The Company also agreed that Allscripts shall receive at least \$500 per year in payments from bookings (the "Annual Minimum Commitment"). If the total payments received by Allscripts from bookings during such period are less than the Annual Minimum Commitment, the Company shall pay to Allscripts the difference between the Annual Minimum Commitment and the total amount received by Allscripts from bookings during such period. As of December 31, 2020 and December 31, 2019, the accrued Annual Minimum Commitment was \$1,200 and \$700, respectively. In the event of a Bookings Commitment shortfall at the end of the ten-year period, the Company may be obligated to pay 70% of the shortfall, subject to certain credits. The Company will earn 30% commission from Allscripts on each software referral transaction that results in a booking with Allscripts. The Company accounts for the Bookings Commitment at its estimated fair value over the life of the agreement.

The Company values the Bookings Commitment, assumed upon the disposal of the provider/patient engagement solutions business, using a Monte Carlo Simulation model to calculate average payments due under the Bookings Commitment, based on management's estimate of its performance in securing bookings and resulting annual payments, discounted at the cost of debt based on a yield curve. The cost of debt used for discounting was between 10% and 11% at December 31, 2020 and between 15% and 17% at December 31, 2019. The change in fair value is recorded within other expense, net in the Company's Consolidated Statements of Operations.

The fair value of the Bookings Commitment is dependent on management's estimate of the probability of success on individual opportunities and the cost of debt applied in discounting the liability. The higher the probability of success on each opportunity, the lower the fair value of the Bookings Commitment liability. The lower the cost of debt applied, the higher the value of the liability.

Convertible Note derivative liability

In December 2016, the Company issued \$107,000 in aggregate principal amount of Convertible Notes due December 15, 2021, of which \$10,000 issued to a related party (see Note 11). The Convertible Notes include an interest make-whole feature whereby if a noteholder converts any of the Convertible Notes one year after the last date of original issuance of the Convertible Notes, they are entitled, in addition to the other consideration payable or deliverable in connection with such conversion, to an interest make-whole payment equal to the sum of the present values of the scheduled payments, computed using a discount rate equal to 2.0%, of interest that would have been made on the Convertible Notes to be converted had such Convertible Notes remained outstanding from the conversion date through the earlier of (i) the date that is three years after the conversion date and (ii) the maturity date if the Convertible Notes had not been so converted. The Company may pay any interest make-whole payment either in cash or in shares of its common stock, at the Company's election as described in the Indenture. The Company has determined that this feature is an embedded derivative.

The fair value of the derivative liability includes the estimated volatility and risk-free rate. The higher/lower the estimated volatility, the higher/lower the value of the liability. The higher/lower the risk-free interest rate, the higher/lower the value of the liability.

The fair market value for level 3 securities may be highly sensitive to the use of unobservable inputs and subjective assumptions. Generally, changes in significant unobservable inputs may result in significantly lower or higher fair value measurements.

The following tables set forth a summary of changes in the fair value of Level 3 liabilities for the years ended December 31, 2020 and 2019:

	December 31, 2019	Transfers in (out) ⁽¹⁾	Change in fair value	December 31, 2020
Liabilities				
Interest make-whole derivative - related party and others	\$ —	\$ —	\$ 4	\$ 4
Bookings Commitment	21,983	(500)	11,168	32,651
	<u>\$ 21,983</u>	<u>\$ (500)</u>	<u>\$ 11,172</u>	<u>\$ 32,655</u>

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	December 31, 2018	Transfers in (out) ⁽¹⁾	Change in fair value	December 31, 2019
Liabilities				
Interest make-whole derivative - related party and others	\$ —	\$ —	\$ —	\$ —
Bookings Commitment	16,947	(500)	5,536	21,983
	<u>\$ 16,947</u>	<u>\$ (500)</u>	<u>\$ 5,536</u>	<u>\$ 21,983</u>

⁽¹⁾ Transfers out of the Bookings Commitment fair value liability relates to the Annual Minimum Commitment, which was recorded in accrued and other current liabilities.

Fair Value of Convertible Notes held at amortized cost

As of December 31, 2020 and 2019, the fair value and carrying value of the Company's Convertible Notes were:

	Fair value	Carrying value	Face value
5.5% convertible senior notes due December 15, 2021:			
Balance as of December 31, 2020			
Related party	\$ 9,553	\$ 9,411	\$ 10,000
Others	92,660	90,578	97,000
	<u>\$ 102,213</u>	<u>\$ 99,989</u>	<u>\$ 107,000</u>
Balance as of December 31, 2019			
Related party	\$ 6,727	\$ 8,864	\$ 10,000
Others	65,257	84,648	97,000
	<u>\$ 71,984</u>	<u>\$ 93,512</u>	<u>\$ 107,000</u>

The fair value shown above represents the fair value of the debt instrument, inclusive of both the debt and equity components, but excluding the derivative liability. The carrying value represents only the carrying value of the debt component.

The fair value of the Convertible Notes was determined by using unobservable inputs that are supported by minimal non-active market activity and that are significant to determining the fair value of the debt instrument. The fair value is level 3 in the fair value hierarchy.

Note 13. Leases

The Company has operating leases for corporate offices, data centers, and certain equipment. The Company's leases have lease terms of 1 year to 11 years, some of which include options to extend the leases for up to 5 years, and some of which include options to terminate the leases within 1 year. NantWorks, a related party, subleases one of the Company's data centers on the same terms the Company agreed with the lessor. Options to extend are included in the lease term where the Company is reasonably certain to exercise the options. Variable payments on the Company's leases are expensed as incurred, as they do not depend on an index or rate. The Company concluded certain leases for data centers had a term of less than 1 year at inception, as arrangements are only renewed following marketplace assessments and negotiations with vendors.

The Company's leases do not indicate the rate implicit in the lease. As such, the Company has used its incremental borrowing rate, determined based on market indications of the rate at which the Company could borrow, adjusted for the term, value and payment schedule of individual leases, at the effective date for ASC 842 or at the lease commencement date for leases entered into after January 1, 2019.

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Lease expense, charged to selling, general and administrative expense, for the year ended December 31, 2020 and 2019 consisted of:

	Year Ended December 31,	
	2020	2019
Operating lease cost	\$ 2,428	\$ 2,386
Short-term lease cost	961	1,056
Variable cost	502	249
Sublease income	(212)	(208)
Total lease cost	\$ 3,679	\$ 3,483

Other information regarding the Company's leases:

	Year Ended December 31,	
	2020	2019
Operating cash flows for operating leases	\$ (2,767)	\$ (2,512)
Right-of-use assets obtained in exchange for new operating lease liabilities	\$ 319	\$ —
Operating lease liabilities arising from obtaining right-of-use assets	\$ 387	\$ —
Weighted average remaining lease term - operating leases	5.0 years	6.0 years
Weighted average discount rate - operating leases	11 %	11 %

As of December 31, 2020 and 2019, the Company had no material finance leases. As of December 31, 2020, the remaining lives of its operating leases ranged from one to nine years.

Future minimum lease payments under the Company's operating leases at December 31, 2020 were:

	Amounts
2021	\$ 2,860
2022	2,680
2023	2,689
2024	2,534
2025	681
Thereafter	1,698
Total future minimum lease payments	13,142
Less: imputed interest	(3,072)
Total	\$ 10,070
As reported in the Consolidated Balance Sheet	
Accrued and other current liabilities	\$ 1,900
Operating lease liabilities	8,170
	\$ 10,070

Note 14. Commitments and Contingencies

The Company's principal commitments consist of obligations under its outstanding debt obligations, noncancelable leases for its office space, data centers and certain equipment and vendor contracts to provide research services, and purchase obligations under license agreements and reseller agreements.

Related Party Promissory Note

On January 4, 2016, the Company executed a \$112,666 demand promissory note in favor of NantCapital to fund the acquisition of NaviNet (see Note 19). On May 9, 2016 and December 15, 2016, the promissory note with NantCapital was amended to provide that all outstanding principal and accrued interest is due and payable on June 15, 2022, and not on demand and the Company subordinated the promissory note in right of payment to the Convertible Notes (see Note 11).

Indenture Obligations Under Convertible Notes

On December 21, 2016, the Company entered into the Indenture relating to the issuance of the \$107,000 Convertible Notes, by and between the Company and U.S. Bank National Association the Trustee. The interest rates are fixed at 5.50% per year, payable semi-annually on June 15th and December 15th of each year, beginning on June 15, 2017. The Convertible Notes will mature on December 15, 2021, unless earlier repurchased by the Company or converted pursuant to their terms (see Note 11).

Unconditional Purchase Obligations

In September 2016, the Company entered into a Second Amended and Restated Reseller Agreement for genomic and proteomic sequencing services and related bioinformatics and analysis services with NantOmics, with an effective date of June 19, 2015 (see Note 19).

In 2020, NantWorks entered into agreements with various vendors related to an enterprise resource planning ("ERP") implementation project on behalf of its subsidiaries, including NantHealth. NantWorks bills the Company for its portion of these expenses through the Shared Services Agreement (see Note 19). The Company's estimated unconditional purchase obligations total approximately \$600 in 2021, \$600 in 2022, and \$100 in 2023.

Regulatory Matters

The Company is subject to regulatory oversight by the U.S. Food and Drug Administration and other regulatory authorities with respect to the development, manufacturing, and sale of some of the solutions. In addition, the Company is subject to the Health Insurance Portability and Accountability Act ("HIPAA"), the Health Information Technology for Economic and Clinical Health Act and related patient confidentiality laws and regulations with respect to patient information. The Company reviews the applicable laws and regulations regarding effects of such laws and regulations on its operations on an on-going basis and modifies operations as appropriate. The Company believes it is in substantial compliance with all applicable laws and regulations. Failure to comply with regulatory requirements could have a significant adverse effect on the Company's business and operations.

Legal Matters

The Company is, from time to time, subject to claims and litigation that arise in the ordinary course of its business. Except as discussed below, in the opinion of management, the ultimate outcome of proceedings of which management is aware, even if adverse to the Company, would not have a material adverse effect on the Company's consolidated financial condition or results of operations. Regardless of the outcome, litigation can have an adverse impact on the Company because of defense and settlement costs, diversion of management resources and other factors.

Securities and Derivative Litigation

In March 2017, a number of putative class action securities complaints were filed in U.S. District Court for the Central District of California, naming as defendants the Company and certain of our current or former executive officers and directors. These complaints have been consolidated with the lead case captioned *Deora v. NantHealth, Inc.*, 2:17-cv-01825 ("Deora"). In June 2017, the lead plaintiffs filed an amended consolidated complaint, which generally alleges that defendants violated federal securities laws by making material misrepresentations in NantHealth's IPO registration statement and in subsequent public statements. In particular, the complaint refers to various third-party articles in alleging that defendants misrepresented NantHealth's business with the University of Utah, donations to the university by non-profit entities associated with the Company's founder Dr. Patrick Soon-Shiong, and orders for GPS Cancer. The lead plaintiffs seek unspecified damages and other relief on behalf of putative classes of persons who purchased or acquired NantHealth securities in the IPO or on the open market from June 1, 2016 through May 1, 2017. In March 2018, the Court largely denied Defendants' motion to dismiss the consolidated amended complaint. On July 30, 2019, the Court certified the case as a class action. On October 23, 2019, the parties notified the Court that they had reached a settlement in principle to resolve the action on a class wide basis in the amount of \$16,500, which was included in accrued and other current liabilities in the Consolidated Balance Sheet at December 31, 2019. The Court granted preliminary approval of the settlement on January 31, 2020. A hearing for final approval of the settlement was scheduled for June 15, 2020, but on June 5, 2020, the Court decided to take the final approval motion on submission, and on July 17, 2020, the Court directed Plaintiff's counsel to submit evidence substantiating all costs incurred. The \$16,500 settlement was paid into a settlement fund prior to the payment deadline of March 2, 2020. The majority of the settlement amount was funded by the Company's insurance carriers, and a portion was by the Company. On September 10, 2020, the Court entered an order granting final approval of the settlement, and the order and settlement are now final.

In May 2017, a putative class action complaint was filed in California Superior Court, Los Angeles County, asserting claims for violations of the Securities Act based on allegations similar to those in Deora. That case is captioned *Bucks County Employees Retirement Fund v. NantHealth, Inc.*, BC 662330. The parties agreed to stay the case. During a status conference on February 4, 2021, the Court scheduled a further status conference for April 7, 2021 and stated that if Plaintiff does not voluntarily dismiss the action, the Court will entertain a motion to dismiss in light of the finalization of the Deora settlement. The Company believes that the claims lack merit and intends to vigorously defend the litigation.

In April 2018, two putative shareholder derivative actions, captioned *Engleman v. Soon-Shiong*, Case No. 2018-0282-AGB, and *Petersen v. Soon-Shiong*, Case No. 2018-0302-AGB were filed in the Delaware Court of Chancery. The plaintiff in the Engleman action previously filed a similar complaint in California Superior Court, Los Angeles County, which was dismissed based on a provision in the Company's charter requiring derivative actions to be brought in Delaware. The Engleman and Petersen complaints contain allegations similar to those in Deora but assert causes of action on behalf of NantHealth against various of the Company's current or former executive officers and directors for alleged breaches of fiduciary duty, abuse of control, gross mismanagement, waste of corporate assets, and unjust enrichment. The Company is named solely as a nominal defendant. In July 2018, the court issued an order consolidating the Engleman and Petersen actions as *In re NantHealth, Inc. Stockholder Litigation*, Lead C.A. No. 2018-0302-AGB, appointing Petersen as lead plaintiff, and designating the Petersen complaint as the operative complaint. On September 20, 2018, the defendants moved to dismiss the complaint. In October 2018, in response to the motion to dismiss, Petersen filed an amended complaint. In November 2018, the defendants moved to dismiss the amended complaint, which asserts claims for breach of fiduciary duty, waste of corporate assets (which Petersen subsequently withdrew), and unjust enrichment. A hearing on the defendants' motion was held on September 25, 2019. On January 14, 2020, the court issued an order granting in part and denying in part the defendants' motion to dismiss. The court dismissed all claims except one claim against Dr. Patrick Soon-Shiong for breach of fiduciary duty. Dr. Soon-Shiong and the Company filed answers to the amended complaint on March 30, 2020. Discovery is now proceeding.

In April 2018, a putative shareholder derivative action captioned *Shen v. Soon-Shiong* was filed in U.S. District Court for the District of Delaware. In November 2018, a putative shareholder derivative action captioned *Manuel v. Soon-Shiong* was filed in the U.S. District Court for the District of Delaware. The complaints contain allegations similar to those in Deora but assert causes of action on behalf of NantHealth against various of the Company's current or former executive officers and directors for alleged breaches of fiduciary duty and unjust enrichment, as well as alleged violations of the federal securities laws based on alleged misstatements or omissions in the Company's 2017 proxy statement. On January 15, 2019, the Shen and Manuel actions were consolidated in a case captioned *In re NantHealth, Inc. Derivative Litigation*. The parties agreed to stay the consolidated case pending a decision on defendants' motion to dismiss in the derivative action in the Delaware Court of Chancery. The stay has been lifted due to the Delaware Court of Chancery's January 14, 2020 decision granting in part and denying in part the motion to dismiss. On October 5, 2020, an amended consolidated complaint was filed which brings claims only against Dr. Soon-Shiong for alleged violations of the federal securities laws and breach of fiduciary duty based on alleged misstatement or omissions in the Company's 2017 and 2018 proxy statements and other public filings, and drops the prior claims against other current or former executive officers and directors of NantHealth. On December 4, 2020, defendant moved to dismiss the amended complaint. On February 2, 2021, plaintiffs filed an answering brief in opposition to defendant's motion to dismiss.

Real Estate Litigation

On March 9, 2018, PayPal, Inc. ("PayPal") commenced an action against the Company in the Superior Court Department of the Trial Court of the Commonwealth of Massachusetts, for Suffolk County. The action was originally captioned PayPal, Inc. v. NantHealth, Inc., Civil Action No. 18-0780-E. On April 10, 2018, the Superior Court transferred the case to its Business Litigation Section, where it is currently pending and captioned as PayPal, Inc. v. NantHealth, Inc., Civil Action No. 18-0780-BLS1. This action arises out of a Sublease Agreement that PayPal and the Company entered into on or about November 30, 2017. The Sublease Agreement pertained to commercial real estate that PayPal leased at One International Place in Boston, Massachusetts. On January 25, 2018, the Company notified PayPal that we were electing to terminate the Sublease Agreement.

In its Verified Complaint, and a contemporaneous notice of default that the Company disputed, PayPal alleged that the Company breached the Sublease Agreement. In addition, PayPal asserted claims for breach of the covenant of good faith and fair dealing, and violations of Massachusetts General Laws, Chapter 93A, sections 2 and 11, and sought a declaratory judgment recognizing and enforcing the terms of the Sublease Agreement. Among other relief, PayPal sought damages, treble damages, interest, costs, and attorneys' fees.

On April 12, 2018, the Company filed its answer and jury demand in the action, denying liability. On October 9, 2018, the Company filed and served its amended answer and jury demand. That jury demand was later withdrawn by stipulation dated September 17, 2020.

On November 4, 2020, the Company and PayPal executed a settlement and release agreement pursuant to which the parties agreed to settle, without any admission of liability, all claims, issues, disputes and differences relating to this litigation in consideration by the Company of \$1,600 to PayPal (the "Settlement Amount"), which amount was paid on November 19, 2020. The Company's and PayPal's counsel filed a stipulation of dismissal with prejudice with the Suffolk Superior Court, without attorneys' fees or costs, and waiving all rights to appeal, which stipulation of dismissal was endorsed by the court and a final judgement entered on December 9, 2020.

Insurance Recoveries

The Company has reflected its right to insurance recoveries, limited to the extent of incurred or probable losses, as a receivable when such recoveries have been agreed to with the Company's third-party insurers and receipt is deemed probable. This includes instances where the Company's third-party insurers have agreed to pay, on the Company's behalf, certain legal defense costs and settlement amounts directly to applicable law firms and a settlement fund. The amount of such receivable related to the securities litigation recorded at December 31, 2020 and 2019 was \$253 and \$16,627, respectively, and is included in prepaid expenses and other current assets in the Consolidated Balance Sheets.

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Note 15. Income Taxes

The amount of loss before taxes from continuing operations is as follows:

	Year Ended December 31,	
	2020	2019
U.S. loss before taxes	(88,360)	(66,889)
Foreign income before taxes	368	490
Loss before income taxes	<u>(87,992)</u>	<u>(66,399)</u>

The components of the provision for income taxes are presented in the following table:

	Year Ended December 31,	
	2020	2019
Current:		
Federal	\$ (13)	\$ (14)
State	170	358
Foreign	66	101
Total current provision	<u>223</u>	<u>445</u>
Deferred:		
Federal	(80)	335
State	46	(875)
Foreign	(3)	(17)
Total deferred benefit	<u>(37)</u>	<u>(557)</u>
Less: (Benefit from) provision for income taxes from discontinued operations, net	<u>(261)</u>	<u>906</u>
Provision for (benefit from) income taxes from continuing operations, net	<u>\$ 447</u>	<u>\$ (1,018)</u>

The provision for income taxes differs from the amount of income tax determined by applying the applicable U.S. statutory federal income tax rate to pretax loss as a result of the following differences:

	Year Ended December 31,	
	2020	2019
United States federal tax at statutory rate	21.00 %	21.00 %
Items affecting federal income tax rate:		
State tax rate, net of federal benefit	3.44 %	2.83 %
Valuation allowance	(23.07)%	(23.38)%
Stock-based compensation	— %	(2.51)%
Other adjustments	(1.88)%	3.59 %
Effective income tax rate	<u>(0.51)%</u>	<u>1.53 %</u>

On March 27, 2020, the United States enacted the Coronavirus Aid, Relief and Economic Security Act (the "CARES Act"). The CARES Act is an emergency economic stimulus package that includes spending and tax breaks to strengthen the United States economy and fund a nationwide effort to curtail the effect of COVID-19. While the CARES Act provides sweeping tax changes in response to the COVID-19 pandemic, some of the more significant provisions which are expected to impact the Company's financial statements include removal of certain limitations on utilization of net operating losses, increasing the loss carryback period for certain losses to five years, and increasing the ability to deduct interest expense, as well as amending certain provisions of the previously enacted Tax Cuts and Jobs Act. Consistent with prior years, the Company expects to continue to generate net losses for the foreseeable future. The Company currently has significant federal and state deferred tax assets attributed to prior net operating losses and research and experimentation tax credits. These deferred tax assets are fully reserved. As the Company has never generated taxable income, the CARES Act feature allowing NOLs originating in 2018, 2019 or 2020 to be carried back five years is not expected to have a significant impact. There was no material impact from other provisions of the CARES Act during 2020.

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On December 27, 2020, the United States enacted the Consolidated Appropriations Act, 2021 (the "Appropriations Act"). Included in the tax provisions are a number of items directly related to COVID-19 relief such as a provision allowing recipients of Paycheck Protection Program (PPP) loans to deduct associated costs and an extension and significant expansion of the employee retention credit originally enacted in the CARES Act. There was no material impact from the provisions of the Appropriations Act in 2020.

On June 29, 2020, the state of California enacted Assembly Bill No. 85 ("AB 85") suspending California net operating loss utilization and imposing a cap on the amount of business incentive tax credits companies can utilize, effective for tax years 2020, 2021 and 2022. There was no material impact from the provisions of AB 85 in 2020.

As of December 31, 2020 and 2019, the Company had an immaterial amount of unremitted earnings related to certain foreign subsidiaries. The Company intends to continue to reinvest its foreign earnings indefinitely and does not expect to incur any significant taxes related to such amounts.

Significant components of the Company's deferred tax assets and liabilities as of December 31, 2020 and 2019 are as follows:

	December 31,	
	2020	2019
Deferred income tax assets:		
Accounts payable and accrued expenses	\$ 9,899	\$ 7,336
163(j) interest limitation	6,903	5,392
Deferred revenue	88	1,461
Allowance for doubtful accounts	92	72
Property, plant and equipment, net	1,044	761
Intangibles	95	3,166
Investments	58,779	51,349
Stock-based compensation	713	719
Other	59	1,202
Operating lease liabilities	2,565	2,909
Net operating loss carryforwards	110,536	109,952
Less: Valuation allowance	(163,719)	(153,353)
Total deferred income tax assets	<u>27,054</u>	<u>30,966</u>
Deferred income tax liabilities:		
State taxes	(6,750)	(6,633)
Intangible assets, net	(17,446)	(19,255)
Convertible notes	(1,549)	(3,017)
Deferred costs to obtain a customer contract	(351)	(302)
Capitalized labor costs	(520)	(980)
Other	(394)	(293)
Operating lease right-of-use assets	(1,897)	(2,155)
Total deferred income tax liabilities	<u>(28,907)</u>	<u>(32,635)</u>
Deferred income taxes, net	<u>\$ (1,853)</u>	<u>\$ (1,669)</u>

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The realization of deferred income tax assets may be dependent on the Company's ability to generate sufficient income in future years in the associated jurisdiction to which the deferred tax assets relate. The Company considers all available positive and negative evidence, including scheduled reversals of deferred income tax liabilities, projected future taxable income, tax planning strategies, and recent financial performance. Based on the review of all positive and negative evidence, including a three-year cumulative pre-tax loss, the Company concluded that except for the deferred tax liability recorded on amortization of certain goodwill due to its indefinite life and deferred tax liability in excess of deferred tax asset for certain separate state and city jurisdictions, it should record a full valuation allowance against all other net deferred income tax assets at December 31, 2020 and 2019 as none of these deferred income tax assets were more likely than not to be realized as of the balance sheet dates. However, the amount of the deferred income tax assets considered realizable may be adjusted if estimates of future taxable income during the carryforward period are increased or if objective negative evidence in the form of cumulative losses is no longer present. In addition, at December 31, 2020, the position of the valuation allowance for deferred tax assets for which subsequently recognized tax benefits will be credited directly to contributed capital is \$347.

A summary of activity in the valuation allowance deducted from deferred tax assets for the years ended December 31, 2020 and 2019 is as follows:

	Balance at beginning of the period	Additions (Adjustments)	Deductions	Balance at the end of the period
Year to Date December 31, 2020	\$ 153,353	10,366	—	\$ 163,719
Year to Date December 31, 2019	\$ 140,788	12,565	—	\$ 153,353

The Company records a tax benefit from uncertain tax positions only if it is more likely than not the tax position will be sustained with the taxing authority having full knowledge of all relevant information. The Company records a liability for unrecognized tax benefits from uncertain tax positions as discrete tax adjustments in the first period that the more-likely-than-not threshold is not met. As of December 31, 2020 and 2019, the Company had no unrecognized tax benefits.

The Company's policy is to recognize interest and penalties related to uncertain tax positions in income tax expense. As of December 31, 2020 and 2019, there are no material interest and penalties associated with unrecognized tax benefits recorded in the Company's Consolidated Statements of Operations or Consolidated Balance Sheets. Any changes to unrecognized tax benefits recorded as of December 31, 2020 that are reasonably possible to occur within the next 12 months are not expected to be material.

The Company is no longer subject to income tax examination by the U.S. federal, state or local tax authorities for years ended December 31, 2015 or prior; however, its tax attributes, such as NOL carryforwards and tax credits, are still subject to examination in the year they are used.

As of December 31, 2020, the Company had federal, state and foreign NOL carryforwards of \$419,192, \$300,581 and \$0, respectively, available to offset taxable income in tax year 2021 and thereafter. Of the \$419,192 in Federal NOL carryforwards, \$64,858 can be carried forward indefinitely and the remaining NOL carryforwards start to expire in 2021. Of the \$300,581 in state NOL carryforwards, \$19,753 can be carried forward indefinitely and the remaining start to expire in 2021. Utilization of the NOL carryforwards is subject to annual limitations due to ownership changes that occurred or could occur in the future as provided by Section 382 of the Code, as amended, as well as similar state and foreign provisions. These ownership changes may limit the amount of the NOL carryforwards that can be utilized annually to offset future taxable income. The total NOL amounts above do not include the NOLs expected to expire.

Note 16. Stockholders' Equity

Amended Certificate of Incorporation

In accordance with the Company's amended and restated certificate of incorporation, which was filed immediately following the closing of its IPO, the Company is authorized to issue 750,000,000 shares of common stock, with a par value of \$0.0001 per share, and 20,000,000 shares of undesignated preferred stock, with a par value of \$0.0001 per share. Holders of the Company's common stock are entitled to one vote for each share held on all matters submitted to a vote of its stockholders. Holders of the Company's common stock have no cumulative voting rights. Further, as of December 31, 2020 and 2019, holders of the Company's common stock have no preemptive, conversion, redemption or subscription rights and there are no sinking fund provisions applicable to the Company's common stock. Upon liquidation, dissolution or winding-up of the Company, holders of the Company's common stock are entitled to share ratably in all assets remaining after payment of all liabilities and the liquidation preferences of any outstanding shares of preferred stock. Subject to preferences that may be applicable to any outstanding shares of preferred stock, holders of the

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Company's common stock are entitled to receive dividends, if any, as may be declared from time to time by the Company's board of directors. As of December 31, 2020 and 2019, there were no outstanding shares of preferred stock.

Note 17. Stock-Based Compensation

The following table reflects the components of stock-based compensation expense recognized in the Company's Consolidated Statements of Operations:

	Year Ended December 31,	
	2020	2019
Phantom units:		
Cost of revenue	27	37
Selling, general and administrative	(23)	63
Research and development	36	28
Total phantom units stock-based compensation expense	40	128
Stock options:		
Cost of revenue	100	23
Selling, general and administrative	1,688	465
Research and development	246	31
Total stock options stock-based compensation expense	2,034	519
Restricted stock units:		
Cost of revenue	9	18
Selling, general and administrative	621	1,976
Research and development	23	67
Total restricted stock units stock-based compensation expense	653	2,061
Discontinued operations	(79)	78
Total stock-based compensation expense	2,648	2,786
Amount capitalized to internal-use software	97	134
Total stock-based compensation cost	\$ 2,745	\$ 2,920

Phantom Unit Plan

On March 31, 2015, the Company approved the NantHealth, LLC Phantom Unit Plan (the "Phantom Unit Plan"). The maximum number of phantom units that may be issued under the Phantom Unit Plan is equal to 11,590,909 minus the number of issued and outstanding Series C units of the Company. The grant date fair value of the phantom units is determined based on the closing price of the Company's common stock on the NASDAQ Composite Index on the date of grant. All phantom units under the Phantom Unit Plan were fully vested as of December 31, 2020. Each grant of phantom units made to a participant under the Phantom Unit Plan vests over a requisite service period of 1 to 4 years, subject to completion of a liquidity event, and is subject to forfeiture upon termination of the participant's continuous service to the Company for any reason. The Company's IPO satisfied the liquidity event condition and the phantom units now entitle their holders to cash or noncash payments in an amount equal to the number of vested units held by that participant multiplied by the fair market value of one share of the Company's common stock on the date each phantom unit vests. After the Company's IPO, the Company will no longer issue any units under the Phantom Unit Plan.

The Company intends to settle all vested phantom unit payments held by United States-based participants in shares of the Company's common stock and classifies these awards as equity awards in its Consolidated Balance Sheets. Awards held by participants who are based outside of the United States will be settled in cash and are classified within accrued and other current liabilities in the Consolidated Balance Sheets as of December 31, 2020 and 2019. In order to satisfy payroll withholding tax obligations triggered by the issuance of shares of common stock to holders of vested phantom units, the Company issues recipients a net lower number of shares of common stock to satisfy tax withholding obligations and remitted a cash payment for the related withholding taxes.

NantHealth, Inc.
Notes to Consolidated Financial Statements
(Dollars in thousands, except per share amounts)

The following table summarizes the activity related to the unvested phantom units during the years ended December 31, 2020 and 2019:

	Number of Units	Weighted-Average Grant-Date Fair Value
Unvested phantom units outstanding - December 31, 2018	588,852	\$ 14.95
Vested	(427,608)	\$ 14.49
Forfeited	(40,682)	\$ 11.26
Unvested phantom units outstanding - December 31, 2019	120,562	\$ 11.49
Vested	(111,699)	\$ 11.32
Forfeited	(8,863)	\$ 14.26
Unvested phantom units outstanding - December 31, 2020	—	\$ —

The total fair value of phantom units that vested during the years ended December 31, 2020 and 2019 totaled \$279 and \$240.

The Company has previously granted phantom units to employees of related companies who are providing services to the Company under the Shared Services Agreement with NantWorks (see Note 19) as well as certain consultants of the Company. No phantom units were granted during the years ended December 31, 2020 or 2019. All other grants of phantom units have been made to employees of the Company. Stock-based compensation expense for the phantom units issued to participants who are based outside of the United States is re-measured at the end of each reporting period until the awards vest. The Company uses the accelerated attribution method to recognize expense for all phantom units since the awards' vesting was subject to the completion of a liquidity event. The grant date fair value of the phantom units granted prior to LLC Conversion was estimated using both an option pricing method and a probability weighted expected return method.

During the years ended December 31, 2020 and 2019, the Company issued 64,048 and 270,554 shares, respectively, of common stock to participants of the Phantom Unit Plan based in the United States, after withholding approximately 36,238 and 143,292 shares, respectively, to satisfy tax withholding obligations. The Company made a cash payment of \$100 and \$81 to cover employee withholding taxes upon the settlement of these vested phantom units during the years ended December 31, 2020 and 2019, respectively.

2016 Equity Incentive Plan

In May and June of 2016, the Company's Board of Directors adopted and the Company's stockholders approved the 2016 Equity Incentive Plan (the "2016 Plan") in connection with the Company's IPO. The 2016 Plan provides for the grant of incentive stock options, non-statutory stock options, restricted stock, restricted stock units, stock appreciation rights, performance units and performance shares to employees, directors and consultants.

In April 2018, the Company's Board of Directors adopted and, in June 2018, the Company's stockholders approved an amendment to the 2016 Plan, to reserve a further 6,800,000 shares of common stock for issuance pursuant to the 2016 Plan. In May 2020, the Company's stockholders approved an amendment to the 2016 Plan, to reserve a further 12,000,000 shares of common stock for issuance pursuant to the 2016 Plan. Following the approval of the amendments, a total of 24,800,000 shares of common stock were reserved for issuance pursuant to the 2016 Plan.

The Company intends to settle all vested restricted stock unit payments held by United States-based participants, except for certain awards to the Chief Operating Officer, in shares of the Company's common stock and the Company classify these awards as equity awards in its Consolidated Balance Sheets. Awards held by participants who are based outside of the United States, and those awards agreed with participants to be settled in cash, will be settled in cash and are classified within accrued and other current liabilities in the Consolidated Balance Sheets as of December 31, 2020 and 2019. In order to satisfy payroll withholding tax obligations triggered by the issuance of shares of common stock to holders of restricted stock units, the Company issues recipients a net lower number of shares of common stock to satisfy tax withholding obligations and remitted a cash payment for the related withholding taxes.

Stock Options

Stock-based compensation expense is calculated based on the grant date fair value of the award and the attribution of that cost is being recognized ratably over requisite service periods of 1 to 4 years. Stock options expire ten years from the date of grant. The Company has utilized the Black-Scholes option-pricing model to determine the fair value of stock options based on the closing price of the Company's common stock on the NASDAQ Composite Index on the date of grant.

The following table summarizes the weighted-average assumptions used to value stock options at their grant date and the weighted-average grant-date fair value per share:

	Year Ended December 31,	
	2020	2019
Expected volatility	71.94 %	64.22 %
Expected term to exercise from grant date	6.2 years	5.8 years
Risk-free rate	0.41 %	1.50 %
Expected dividend yield	— %	— %
Weighted-average grant-date fair value per share of options	\$ 2.39	\$ 0.38

The following table summarizes the activity related to stock options during the year ended December 31, 2020:

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life	Aggregate Intrinsic Value
Stock options outstanding - December 31, 2018	—	\$ —		
Granted	5,835,724	\$ 0.56		
Forfeited	(20,000)	\$ 0.55		
Stock options outstanding - December 31, 2019	5,815,724	\$ 0.56		
Granted	5,195,000	\$ 3.76		
Exercised	(260,600)	\$ 0.55		\$ 780
Forfeited	(725,000)	\$ 1.03		
Stock options outstanding - December 31, 2020	10,025,124	\$ 2.19	9.1 years	\$ 13,372
Stock options exercisable - December 31, 2020	2,811,374	\$ 0.57	8.6 years	\$ 7,477

As of December 31, 2020, the number, weighted-average exercise price, weighted-average remaining contractual term, and aggregate intrinsic value of the Company's aggregate stock options that either had vested or are expected to vest approximate the corresponding amounts for stock options outstanding.

As of December 31, 2020, the Company had \$11,460 of unrecognized stock-based compensation expense related to the stock options. This cost is expected to be recognized over a weighted-average period of 2.8 years.

The Company settles all exercised stock options by issuing shares of the Company's common stock without netting down the portion related to payroll withholding tax obligations.

Restricted Stock Units

The grant date fair value of the restricted stock units is determined based on the closing price of the Company's common stock on the NASDAQ Composite Index on the date of grant. Each grant of restricted stock units made to a participant vests over a requisite service period of 1 to 4 years. The Company intends to settle all vested restricted stock unit payments held by United States-based participants in shares of the Company's common stock and classifies these awards as equity awards in its Consolidated Balance Sheets. Awards held by participants who are based outside of the United States will be settled in cash and are classified within accrued and other current liabilities in the Consolidated Balance Sheets as of December 31, 2020 and 2019.

NantHealth, Inc.
Notes to Consolidated Financial Statements
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The following table summarizes the activity related to the unvested restricted stock units during the years ended December 31, 2020 and 2019:

	Number of Units	Weighted-Average Grant-Date Fair Value
Unvested restricted stock units outstanding - December 31, 2018	1,812,961	\$ 2.74
Granted	60,000	\$ 0.98
Vested	(904,096)	\$ 2.67
Forfeited	(263,450)	\$ 2.71
Unvested restricted stock units outstanding - December 31, 2019	705,415	\$ 2.68
Granted	179,558	\$ 1.81
Vested	(540,711)	\$ 3.10
Forfeited	(90,954)	\$ 1.41
Unvested restricted stock units outstanding - December 31, 2020	253,308	\$ 1.64

Unrecognized compensation expense related to unvested restricted stock units was \$276 at December 31, 2020, which is expected to be recognized as expense over the weighted-average period of 0.7 years.

The total fair value of RSUs that vested during the years ended December 31, 2020 and 2019 totaled \$1,516 and \$613.

During the years ended December 31, 2020 and 2019, the Company issued 391,738 and 642,520 shares, respectively, of common stock to participants of the 2016 Plan based in the United States, after withholding approximately 249,249 and 261,335 shares, respectively, to satisfy tax withholding obligations. The Company made a cash payment of \$698 and \$181 to cover employee withholding taxes upon the settlement of these vested restricted stock units during the years ended December 31, 2020 and 2019, respectively.

Note 18. Net Loss Per Share

The following table sets forth reconciliations of the numerators and denominators used to compute basic and diluted net loss per share of common stock attributable to NantHealth for the years ended December 31, 2020 and 2019:

	Year ended December 31,	
	2020	2019
	Common Stock	Common Stock
Net loss per share numerator:		
Net loss from continuing operations	\$ (88,439)	\$ (65,381)
Net loss attributable to noncontrolling interests	(120)	—
Net loss from continuing operations attributable to NantHealth	(88,319)	(65,381)
Income from discontinued operations, net of tax, attributable to NantHealth	31,993	2,619
Net loss for basic and diluted net loss per share	\$ (56,326)	\$ (62,762)
Weighted-average shares for basic net loss per share	110,954,858	110,351,638
Effect of dilutive securities	—	—
Weighted-average shares for dilutive net loss per share	110,954,858	110,351,638
Basic and diluted net loss per share attributable to NantHealth:		
Continuing operations - common stock	\$ (0.80)	\$ (0.59)
Discontinued operations - common stock	\$ 0.29	\$ 0.02
Total net loss per share - common stock	\$ (0.51)	\$ (0.57)

NantHealth, Inc.
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The following number of potential common shares at the end of each period were excluded from the calculation of diluted net loss per share attributable to common stockholders because their effect would have been anti-dilutive for the periods presented:

	Year Ended December 31,	
	2020	2019
Unvested restricted stock	—	—
Unvested phantom units	—	77,530
Unexercised stock options	10,025,124	5,815,724
Unvested restricted stock units	253,308	705,415
Convertible notes	8,815,655	8,815,655

Note 19. Related Party Transactions

NantWorks Shared Services Agreement

In October 2012, the Company entered into a shared services agreement with NantWorks that provides for ongoing services from NantWorks in areas such as public relations, information technology and cloud services, human resources and administration management, finance and risk management, environmental health and safety, sales and marketing services, facilities, procurement and travel, and corporate development and strategy (the "Shared Services Agreement"). The Company is billed quarterly for such services at cost, without mark-up or profit for NantWorks, but including reasonable allocations of employee benefits, facilities and other direct or fairly allocated indirect costs that relate to the associates providing the services. NantHealth also bills NantWorks and affiliates for services such as information technology and cloud services, finance and risk management, and facilities management, on the same basis. During the years ended December 31, 2020 and 2019, the Company recognized income of \$162 and incurred expense of \$1,318, respectively, in selling, general and administrative expenses for services provided to the Company by NantWorks and affiliates, net of services provided to NantWorks and affiliates.

Related Party Receivables and Payables

As of December 31, 2020 and 2019, the Company had related party receivables, net of related party payables, of \$1,854 and \$1,931, respectively, primarily consisting of a receivable from Ziosoft KK of \$1,477 and \$1,658, respectively, which was related to the sale of Qi Imaging. As of December 31, 2020 and 2019, the Company had related party payables, net of related party receivables, and related party liabilities of \$35,329 and \$28,347, respectively, which primarily relate to amounts owed to NantWorks pursuant to the Shared Services Agreement, amounts owed to NantOmics under the Second Amended Reseller Agreement (defined below) and interest payable. The balance of the related party receivables and payables represent amounts paid by affiliates on behalf of the Company or vice versa.

Assignment of The OpenNMS Group, Inc.

On July 22, 2020, the Company entered into an assignment agreement (the "Assignment Agreement") with Cambridge to acquire approximately 91% of The OpenNMS Group, Inc. for \$5,577 in cash. Contemporaneously with the closing of the Assignment Agreement, OpenNMS issued call options to the Company consisting of, when exercised, cash payment of \$278 and issuance of 56,769 shares of the Company's common stock in exchange for the 9% of the shares of OpenNMS common stock held by the remaining shareholders. These call options expired unexercised on September 30, 2020.

As the Company and Cambridge are controlled by the Company's Chairman and CEO, the acquisition was treated as a transaction between entities under common control. The Company recognized the assets and liabilities transferred under the Assignment Agreement at their carrying amounts on July 22, 2020 based on Cambridge's historical cost, including the effects of purchase accounting from the November 1, 2019 acquisition of OpenNMS by Cambridge. The transaction did not cause a material change in the reporting entity, and the Company has not retrospectively adjusted its previously issued financial statements. The consolidation of OpenNMS at July 22, 2020 increased the Company's revenue and net loss by \$763 and \$1,311, respectively, during the year ended December 31, 2020.

The intangible assets acquired are amortized over the weighted-average useful life of 5.9 years. These definite-lived intangible assets include developed technology of \$2,500 (6-year useful life), installed user base of \$1,400 (6-year useful life), customer relationship of \$1,000 (6-year useful life), and trade name of \$300 (4-year useful life).

NantHealth, Inc.
Notes to Consolidated Financial Statements
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		Amounts
Total cash consideration	\$	5,577
Assets and liabilities of OpenNMS at assignment:		
Cash and cash equivalents		102
Goodwill		1,026
Intangible asset, net		4,553
Other assets		1,097
Other liabilities assumed		(1,227)
Net assets acquired at assignment		5,551
Noncontrolling interests		(503)
Recorded as distribution from additional paid-in capital	\$	529

Amended Reseller Agreement

On June 19, 2015, the Company entered into a five and a half year exclusive Reseller Agreement with NantOmics for sequencing and bioinformatics services (the "Original Reseller Agreement"). NantOmics is a majority owned subsidiary of NantWorks and is controlled by the Company's Chairman and CEO. On May 9, 2016, the Company and NantOmics executed an Amended and Restated Reseller Agreement (the "Amended Reseller Agreement"), pursuant to which the Company received the worldwide, exclusive right to resell NantOmics' quantitative proteomic analysis services, as well as related consulting and other professional services, to institutional customers (including insurers and self-insured healthcare providers) throughout the world. The Company retained its existing rights to resell NantOmics' molecular analysis and bioinformatics services. Under the Amended Reseller Agreement, the Company is responsible for various aspects of delivering its sequencing and molecular analysis solutions, including patient engagement and communications with providers such as providing interpretations of the reports delivered to the physicians and resolving any disputes, ensuring customer satisfaction, and managing billing and collections. On September 20, 2016, the Company and NantOmics further amended the Amended Reseller Agreement (the "Second Amended Reseller Agreement"). The Second Amended Reseller Agreement permits the Company to use vendors other than NantOmics to provide any or all of the services that are currently being provided by NantOmics and clarifies that the Company is responsible for order fulfillment and branding.

The Second Amended Reseller Agreement grants to the Company the right to renew the agreement (with exclusivity) for up to three renewal terms, each lasting three years, if the Company achieves projected volume thresholds, as follows: (i) the first renewal option can be exercised if the Company completes at least 300,000 tests between June 19, 2015 and June 30, 2020; (ii) the second renewal option can be exercised if the Company completes at least 570,000 tests between July 1, 2020 and June 30, 2023; and (iii) the third renewal option can be exercised if the Company completes at least 760,000 tests between July 1, 2023 and June 30, 2026. If the Company does not meet the applicable volume threshold during the initial term or the first or second exclusive renewal terms, the Company can renew for a single additional three-year term, but only on a non-exclusive basis.

The Company agreed to pay NantOmics noncancelable annual minimum fees of \$2,000 per year for each of the calendar years from 2016 through 2020 and, subject to the Company exercising at least one of its renewal options described above. The Company was also required to pay annual minimum fees from 2021 through 2029. These annual minimum fees are no longer applicable with the execution of Amendment No. 3 to the Second Amended Reseller Agreement.

On December 18, 2017, the Company and NantOmics executed Amendment No. 1 to the Second Amended Reseller Agreement. The Second Amended Reseller Agreement was amended to allow fee adjustments with respect to services completed by NantOmics between the amendment effective date of October 1, 2017 to June 30, 2018.

On April 23, 2019, the Company and NantOmics executed Amendment No. 2 to the Second Amended Reseller Agreement. The Second Amended Reseller Agreement was amended to set a fixed fee with respect to services completed by NantOmics between the amendment effective date and the end of the Initial Term, December 31, 2020.

On December 31, 2020, the Company and NantOmics executed Amendment No. 3 to the Second Amended Reseller Agreement to automatically renew at the end of December 2020 for a non-exclusive renewal term and to waive the annual minimum fee for the 2020 calendar year.

As of December 31, 2020 and 2019, the Company had \$3 and \$126, respectively, of outstanding related party payables under the Second Amended Reseller Agreement. During the years ended December 31, 2020 and 2019, direct costs of \$51 and \$2,000, respectively, were recorded as cost of revenue related to the Second Amended Reseller Agreement.

Cambridge Purchase Agreement

On December 15, 2016, the Company entered into the Cambridge Purchase Agreement with Cambridge, an entity affiliated with the Company's Chairman and CEO, Dr. Patrick Soon-Shiong, to issue and sell \$10,000 in aggregate principal amount of the Convertible Notes in a private placement pursuant to an exemption from the registration requirements of the Securities Act afforded by Section 4(a)(2) of the Securities Act. The Cambridge Purchase Agreement includes customary representations, warranties and covenants by the Company and customary closing conditions (see Note 11). The accrued and unpaid interest on the Convertible Notes held by Cambridge was \$24 at both December 31, 2020 and 2019, as part of current related party payables, net in the Consolidated Balance Sheets.

Liquid Tumor Profiling Services Agreements

In March 2018, NantHealth Labs, a wholly-owned subsidiary of the Company, and NantKwest, Inc. ("NantKwest"), an affiliate, entered into agreements whereby NantHealth Labs is providing liquid tumor profiling services to NantKwest for clinical trials, on an annual, stand-ready, basis from the date of the first test of each participant, with revenues recognized ratably over time for the period of the stand-ready obligation.

In June 2018, NantHealth Labs entered into similar agreements to provide liquid tumor profiling services to Altor BioScience ("Altor"), ImmunityBio, Inc. ("ImmunityBio", formerly NantCell, Inc.), and NantBioScience, Inc. ("NantBio"), all affiliates of the Company.

Under these agreements, the Company did not record any revenue during the year ended December 31, 2020. Under these agreements, the Company recorded \$475 of revenue during the year ended December 31, 2019. As of both December 31, 2020 and 2019, the Company had \$110 of accounts receivable from related parties due to these agreements.

Related Party Promissory Notes

On January 4, 2016, the Company executed a \$112,666 demand promissory note in favor of NantCapital to fund the acquisition of NaviNet. The note bears interest at a per annum rate of 5.0%, compounded annually and computed on the basis of the actual number of days elapsed and a year of 365 or 366 days, as the case may be. The unpaid principal and any accrued and unpaid interest on the note were originally due and payable on demand in either (i) cash, (ii) shares of the Company's common stock based on per share price of \$18.6126, (iii) Series A-2 units of NantOmics based on a per unit price of \$1.484 to the extent such equity is owned by the Company or (iv) any combination of the foregoing, all at the option of NantCapital. Subject to the preceding sentence, the Company may prepay the outstanding amount at any time, either in whole or in part, without premium or penalty and without the prior consent of NantCapital. On May 9, 2016, the promissory note with NantCapital was amended to provide that all outstanding principal and accrued interest is due and payable on June 30, 2021, and not on demand. On December 15, 2016, in connection with the offering of the Convertible Notes, the Company entered into a Second Amended and Restated Promissory Note which amends and restates the Amended and Restated Promissory Note, dated May 9, 2016, between the Company and NantCapital, to, among other things, extend the maturity date of the promissory note to June 15, 2022 and to subordinate the promissory note in right of payment to the Convertible Notes (see Note 11). No other terms of the promissory note were changed. As of December 31, 2020 and 2019, the total principal and interest outstanding on the promissory note amounted to \$143,756 and \$136,893, respectively. The accrued and unpaid interest on the promissory note was \$31,090 and \$24,227 at December 31, 2020 and 2019, respectively, included as part of noncurrent related party liabilities in the Consolidated Balance Sheets. The Company can request additional advances subject to NantCapital approval. There are no other stated restrictions or maximum commitment for advances. NantCapital has the option, but not the obligation, to require the Company to repay any such amount in cash, Series A-2 units of NantOmics (based on a per unit price of \$1.484) held by the Company, shares of the Company's common stock based on a per share price of \$18.6126 (if such equity exists at the time of repayment), or any combination of the foregoing at the sole discretion of NantCapital.

On January 22, 2016, the Company executed a demand promissory note in favor of NantOmics. The principal amount of the initial advance totaled \$20,000. On March 8, 2016, NantOmics made a second advance to the Company for \$20,000. The note bears interest at a per annum rate of 5.0% and is compounded annually. In May and June of 2016, the Company executed amendments to the demand promissory note with NantOmics, which provide that all unpaid principal of each advance owed to NantOmics and any accrued and unpaid interest would convert automatically into shares of the Company's common stock after pricing of the Company's IPO and immediately after conversion of the Company from a limited liability company to a corporation. On June 1, 2016, approximately \$40,590 of principal and accrued interest under the promissory note with NantOmics was converted into 2,899,297 shares of the Company's common stock in connection with the IPO. The amendments also provided a maturity date for the promissory note of June 30, 2021. The Company can request additional advances subject to NantOmics approval. There are no other stated restrictions or maximum commitment for advances. As of December 31, 2020 and 2019, there was no outstanding balance on the promissory note.

On August 8, 2018, the Company executed a promissory note in favor of NantCapital, with a maturity date of June 15, 2022. On December 31, 2020, the Company and NantCapital executed an agreement to amend and restate the original promissory note

NantHealth, Inc.
Notes to Consolidated Financial Statements
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allowing the Company to request advances up a maximum commitment of \$125,000 that bears interest at a per annum rate of 5.50%, extended the maturity date to December 31, 2023, and created an option for the securitization of the debt under the promissory note upon full repayment of the Convertible Notes. Interest payments on outstanding amounts are due on December 15th of each calendar year. The promissory note is subordinated to the Convertible Notes (see Note 11). The promissory note includes customary negative covenants. No advances have currently been made under the note. At December 31, 2020, the Company was in compliance with the covenants.

Note 20. Employee Retirement Plan

The Company has a qualified defined contribution plan (the "NantHealth 401(k) Plan") under Section 401(k) of the Internal Revenue Code covering eligible associates, including associates at certain of its subsidiaries. Associate contributions to the NantHealth 401(k) Plan are voluntary. The Company contributes a 100% match up to 3.0% of the participant's eligible annual compensation, which contribution fully vests after three years of service. Participants' contributions are limited to their annual tax deferred contribution limit as allowed by the Internal Revenue Service. For the years ended December 31, 2020 and 2019, the Company's total matching contributions to the NantHealth 401(k) Plan were \$1,098 and \$1,260, respectively.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this report. Our disclosure controls and procedures are designed to ensure that information required to be disclosed in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to management, including the Chief Executive Officer and Chief Financial Officer, to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of December 31, 2020.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles ("GAAP"). Internal control over financial reporting includes policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that receipts and expenditures of the Company are transacted in accordance with authorizations of management and directors of the Company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Company's assets that could have a material effect on the financial statements.

Our management, under the supervision of our Chief Executive Officer and Chief Financial Officer, conducted an assessment of the effectiveness of its internal control over financial reporting as of December 31, 2020 based on the criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on this assessment, management concluded that our internal control over financial reporting was effective as of December 31, 2020.

Changes in Internal Control Over Financial Reporting

There were no changes to our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the quarter ended December 31, 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations in the Effectiveness of Controls

Management recognizes that a control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints and that management is required to apply its judgment in evaluating the benefits of possible controls and procedures relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud or error, if any, have been detected. These inherent limitations include the realities that judgments in decision making can be faulty, and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item will be contained in our definitive proxy statement to be filed with the Securities and Exchange Commission on Schedule 14A in connection with our 2021 Annual Meeting of Stockholders (the "Proxy Statement"), which is expected to be filed not later than 120 days after the end of our fiscal year ended December 31, 2020, and is incorporated herein by reference.

Item 11. Executive Compensation

The information required by this item will be contained in the Proxy Statement under the heading "Executive Compensation" and "Director Compensation" and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this item will be contained in the Proxy Statement under the headings "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plan Information" and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item will be contained in the Proxy Statement under the headings "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plan Information" and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services

The information required by this item will be contained in the Proxy Statement under the heading "Principal Accounting Fees and Services" and is incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) The consolidated financial statements schedules and exhibits filed as part of this Annual Report on Form 10-K are as follows:

(1) Consolidated financial statements

Reference is made to the consolidated financial statements identified in the "Index to Financial Statements" under Part II, Item 8 of this Annual Report.

(2) Financial Statement Schedules

All other schedules not listed above have been omitted because the information required to be set forth therein is not applicable or is otherwise in the consolidated financial statements or notes thereto.

(3) Exhibits

The documents listed in the Exhibit Index of this Annual Report are incorporated by reference or are filed with this Annual Report, in each case as indicated therein (numbered in accordance with Item 601 of Regulation S-K).

Exhibits Index

The exhibits listed in the accompanying index to exhibits are filed as part of, or incorporated by reference into, this Annual Report on Form 10-K.

Number	Exhibit Title	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
3.1	Amended and Restated Certificate of Incorporation.	10-Q	001-37792	3.1	August 15, 2016	
3.2	Amended and Restated Bylaws.	10-Q	001-37792	3.2	August 15, 2016	
4.1	Description of Securities					X
10.1.1+	Second Amended and Restated NantOmics Exclusive Reseller Agreement, dated as of September 20, 2016, by and between the Registrant and NantOmics, LLC.	10-Q	001-37792	10.1	November 10, 2016	
10.1.2+	Amended and Restated NantOmics Exclusive Reseller Agreement, dated as of May 9, 2016, by and between the Registrant and NantOmics, LLC.	S-1/A	333-211196	10.1	June 1, 2016	
10.1.3+	Amendment No. 2 to Second Amended and Restated NantOmics Exclusive Reseller Agreement, dated as of April 23, 2019, by and between the Registrant and NantOmics, LLC.	10-Q	001-37792	10.1.2	May 9, 2019	
10.1.4	Amendment No. 3 to Second Amended and Restated NantOmics Exclusive Reseller Agreement dated as of December 31, 2020.	8-K	001-37792	10.2	January 5, 2021	
10.2+	NantHealth License Agreement, dated June 19, 2015, by and between the Registrant and NantOmics, LLC, as amended.	S-1/A	333-211196	10.2	June 1, 2016	
10.3#	2016 Equity Incentive Plan, as Amended and Restated, and related form agreement.	S-8	333-239326	99.1	June 19, 2020	
10.4#	2016 Executive Incentive Compensation Plan.	S-1	333-211196	10.13	May 6, 2016	
10.5	Amended and Restated Promissory Note, between Registrant and Nant Capital LLC, dated May 9, 2016.	S-1/A	333-211196	10.18	May 11, 2016	
10.6	Amended and Restated Promissory Note, between Registrant and NantOmics, LLC, dated May 23, 2016.	S-1/A	333-211196	10.19	May 24, 2016	
10.7	Side Letter Agreement, between Registrant and NantWorks, LLC, dated May 22, 2016.	S-1/A	333-211196	10.21	May 23, 2016	
10.8	Indenture, dated December 21, 2016, between NantHealth, Inc. and U.S. Bank National Association.	8-K	001-37792	10.2	December 21, 2016	
10.9	Form of 5.50% Convertible Senior Note due 2021 (included in Exhibit 4.1).	8-K	001-37792	4.1	December 21, 2016	
10.10	Purchase Agreement, dated December 15, 2016, by and among NantHealth, Inc. and J.P. Morgan Securities LLC and Jefferies LLC, as representative of the initial purchasers named therein.	8-K	001-37792	10.1	December 21, 2016	
10.11	Purchase Agreement, dated December 15, 2016, by and between NantHealth, Inc. and Cambridge Equities, L.P.	8-K	001-37792	10.2	December 21, 2016	
10.12	Second Amended and Restated Promissory Note, dated December 15, 2016, by and between NantHealth, Inc. and Nant Capital LLC.	8-K	001-37792	10.3	December 21, 2016	
10.13	Asset Purchase Agreement dated as of August 3, 2017, between Allscripts Healthcare Solutions, Inc. and NantHealth Inc.	8-K	001-37792	2.1	August 31, 2017	
10.14+	Amendment No.1 to Second Amended and Restated Reseller Agreement, dated December 18, 2017, by and between NantHealth, Inc. and NantOmics, LLC.	10-K	001-37792	10.14	March 16, 2018	

Number	Exhibit Title	Incorporated by Reference				Filed Date	Filed Herewith
		Form	File No.	Exhibit			
10.15	Assignment Agreement, dated February 1, 2018, by and between the Company and NantOmics, LLC.	10-Q/A	001-37792	10.1	July 11, 2018		
10.16	Promissory note dated August 8, 2018, by the Company to the benefit of Nant Capital, LLC.	10-Q	001-37792	10.1	August 9, 2018		
10.17#	Amended and Restated Consulting Agreement dated September 12, 2018, between the Company and Mr. Bob Petrou	10-Q	001-37792	10.2	November 21, 2018		
10.18***	Asset Purchase Agreement dated as of January 13, 2020, among Masimo Corporation and VCCB Holdings, Inc., and NantHealth, Inc.	10-K	001-37792	2.1	February 28, 2020		
10.19	Open NMS Assignment Agreement, dated as of July 22, 2020, between the Registrant and Cambridge Equities, LP.	10-Q	001-37792	2.1	August 7, 2020		
10.20	Amended and Restated Promissory Note by and between the Company and Nant Capital, LLC dated as of December 31, 2020.	8-K	001-37792	10.1	January 5, 2021		
21.1	Subsidiaries					X	
23.1	Consent of Ernst & Young LLP					X	
24.1	Power of Attorney (Contained on Signature Page to this Annual Report on Form 10-K).					X	
31.1	Certification of Principal Executive Officer required by Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X	
31.2	Certification of Principal Financial Officer required by Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X	
32.1 *	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X	
32.2 *	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X	
101.INS**	XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.					X	
101.SCH**	XBRL Taxonomy Extension Schema Document.					X	
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document.					X	
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document.					X	
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document.					X	
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase Document.					X	

Represents a management contract or compensatory plan.

+ Confidential treatment granted with respect to certain portions of this exhibit. Omitted portions filed separately with the Securities and Exchange Commission.

* As contemplated by SEC Release No. 33-8212, these exhibits are furnished with this Annual Report on Form 10-K and are not deemed filed with the Securities and Exchange Commission and are not incorporated by reference in any filing of NantHealth, Inc. under the

Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date hereof and irrespective of any general incorporation language contained in such filings.

** XBRL (eXtensible Business Reporting Language) information is furnished and not filed or a part of a registration statement or prospectus for purposes of sections 11 or 12 of the Securities Act of 1933, as amended, is deemed not filed for purposes of section 18 of the Securities Exchange Act of 1934, as amended, and is otherwise not subject to liability under these sections.

*** Certain identified information has been omitted pursuant to Item 601(b)(10) of Regulation S-K because such information is both (i) not material and (ii) would likely cause competitive harm to the Company if publicly disclosed. The Company hereby undertakes to furnish supplemental copies of the unredacted exhibit upon request by the SEC.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

NantHealth, Inc.

Date: February 26, 2021

By: /s/ Patrick Soon-Shiong
Name: Patrick Soon-Shiong
Its: Chairman, Chief Executive Officer and Director
(Principal Executive Officer)

By: /s/ Bob Petrou
Name: Bob Petrou
Its: Chief Financial Officer
(Principal Financial and Accounting Officer)

POWER OF ATTORNEY

Each person whose signature appears below constitutes and appoints Patrick Soon-Shiong and Bob Petrou, and each of them, as his or her true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or their or his substitutes, may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Annual Report on Form 10-K has been signed below by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

Signature	Title	Date
<u>/s/ Patrick Soon-Shiong</u> Patrick Soon-Shiong	Chairman, Chief Executive Officer and Director (Principal Executive Officer)	February 26, 2021
<u>/s/ Bob Petrou</u> Bob Petrou	Chief Financial Officer (Principal Financial and Accounting Officer)	February 26, 2021
<u>/s/ Michael S. Sitrick</u> Michael S. Sitrick	Director	February 26, 2021
<u>/s/ Kirk K. Calhoun</u> Kirk K. Calhoun	Director	February 26, 2021
<u>/s/ Michael Blaszyk</u> Michael Blaszyk	Director	February 26, 2021
<u>/s/ Deanna Wise</u> Deanna Wise	Director	February 26, 2021

**DESCRIPTION OF THE REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES
EXCHANGE ACT OF 1934**

NantHealth, Inc. has one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), our Common Stock.

Description of Common Stock

The following description of our Common Stock is a summary and does not purport to be complete. It is subject to and qualified in its entirety by reference to our Amended and Restated Certificate of Incorporation (the "Certificate of Incorporation") and our amended and restated Bylaws (the "Bylaws"), each of which are incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.1 is a part. We encourage you to read our Certificate of Incorporation, our Bylaws and the applicable provisions of the Delaware General Corporation Law, for additional information.

Common Stock

We are authorized to issue up to a total of 750,000,000 shares of common stock, par value \$0.0001 per share. Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of our stockholders. Holders of our common stock have no cumulative voting rights. Further, holders of our common stock have no preemptive, conversion, redemption or subscription rights and there are no sinking fund provisions applicable to our common stock. Upon our liquidation, dissolution or winding-up, holders of our common stock are entitled to share ratably in all assets remaining after payment of all liabilities and the liquidation preferences of any of our outstanding shares of preferred stock. Subject to preferences that may be applicable to any outstanding shares of preferred stock, holders of our common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors, or board, out of our assets which are legally available.

As of December 31, 2020, there were 111,284,733 shares of common stock issued and outstanding and there were approximately 109 holders of record of our common stock. As of December 31, 2020, there were 10,025,124 shares of common stock underlying outstanding options and 253,308 shares of common stock underlying restricted stock units, and 0 shares of common stock underlying phantom units.

Preferred Stock

Our board is authorized, subject to certain limitations prescribed by law, to designate and issue up to a total of 20,000,000 shares of preferred stock, par value \$0.0001 per share, without stockholder approval. The board may issue preferred stock from time to time in one or more series and fix the designations, preferences and rights of the shares of each such series and any qualifications, limitations or restrictions on the shares of each such series, including dividend rights and rates, conversion rights, voting rights, terms of redemption, liquidation preferences and the number of shares constituting any such series.

Our board may authorize the issuance of preferred stock with voting or conversion rights that could harm the voting power or other rights of the holders of the common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of our company and might harm the market price of our common stock and the voting and other rights of the holders of common stock. We have no current plans to issue any shares of preferred stock.

Anti-Takeover Effects of Delaware Law and Our Certificate of Incorporation and Bylaws

The provisions of Delaware law, our amended and restated certificate of incorporation and our amended and restated bylaws may have the effect of delaying, deferring or discouraging another person from acquiring control of our company. These provisions, which are summarized below, may have the effect of discouraging takeover bids. They are also designed, in part, to encourage persons seeking to acquire control of us to negotiate first with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us because negotiation of these proposals could result in an improvement of their terms.

Amended and Restated Certificate of Incorporation and Amended and Restated Bylaw Provisions

Our amended and restated certificate of incorporation and our amended and restated bylaws include a number of provisions that could deter hostile takeovers or delay or prevent changes in control of our management team, including the following:

- *Board of directors vacancies.* Our amended and restated certificate of incorporation and amended and restated bylaws authorize only our board of directors to fill vacant directorships, including newly created seats. In addition, the number of directors constituting our board of directors is permitted to be set only by a resolution adopted by our board of directors. These provisions would prevent a stockholder from increasing the size of our board of directors and then gaining control of our board of directors by filling the resulting vacancies with its own nominees. This makes it more difficult to change the composition of our board of directors but promotes continuity of management.
- *Advance notice requirements for stockholder proposals and director nominations.* Our amended and restated bylaws provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders or to nominate candidates for election as directors at our annual meeting of stockholders. Our amended and restated bylaws also specify certain requirements regarding the form and content of a stockholder's notice. These provisions might preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our annual meeting of stockholders if the proper procedures are not followed. We expect that these provisions may also discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company.
- *No cumulative voting.* The Delaware General Corporation Law provides that stockholders are not entitled to the right to cumulate votes in the election of directors unless a corporation's certificate of incorporation provides otherwise. Our amended and restated certificate of incorporation does not provide for cumulative voting.
- *Amendment of charter provisions.* Any amendment of the above provisions in our amended and restated certificate of incorporation requires approval by holders of at least two-thirds of our then outstanding voting securities.
- *Issuance of undesignated preferred stock.* Our board of directors has the authority, without further action by the stockholders, to issue up to 20,000,000 shares of undesignated preferred stock with rights and preferences, including voting rights, designated from time to time by our board of directors. The existence of authorized but unissued shares of preferred stock would enable our board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or other means.

- *Exclusive forum.* Unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware is the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws, or (iv) any action asserting a claim against us governed by the internal affairs doctrine. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees.

Listing

Our common stock is listed on The NASDAQ Global Select Market under the symbol "NH."

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC, or AST. The transfer agent and registrar's address is 6201 15th Avenue, Brooklyn, New York 11219. The transfer agent's telephone number is (800) 937-5449.

NantHealth, Inc.**Subsidiaries**

<u>Name of Subsidiary</u>	<u>Jurisdiction of Organization</u>
NaviNet, Inc.	Delaware
NaviNet Limited	United Kingdom
NantHealth Labs, Inc.	Delaware
NantHealth Singapore Pte Ltd	Singapore
New Nant Health Canada, Inc.	Canada
The Open NMS Group, Inc.	North Carolina
OpenNMS Group Canada, Inc.	Canada

Note: Subsidiary companies excluded from the above listing, if considered in the aggregate, would not constitute a significant subsidiary.

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

- (1) Registration Statement (Form S-3 No. 333-223744) of NantHealth, Inc., and
- (2) Registration Statement (Form S-8 Nos. 333-239326, 333-211886 and 333-225670) pertaining to the 2016 Equity Incentive Plan and Phantom Unit Plan of NantHealth, Inc.

of our report dated February 26, 2021, with respect to the consolidated financial statements of NantHealth, Inc., included in this Annual Report (Form 10-K) of NantHealth, Inc. for the year ended December 31, 2020.

/s/ Ernst & Young LLP

Los Angeles, California

February 26, 2021

POWER OF ATTORNEY

Each person whose signature appears below constitutes and appoints Patrick Soon-Shiong and Bob Petrou, and each of them, as his or her true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or their or his substitutes, may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Annual Report on Form 10-K has been signed below by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

Signature	Title	Date
<u>/s/ Patrick Soon-Shiong</u> Patrick Soon-Shiong	Chairman, Chief Executive Officer and Director (Principal Executive Officer)	February 26, 2021
<u>/s/ Bob Petrou</u> Bob Petrou	Chief Financial Officer (Principal Financial and Accounting Officer)	February 26, 2021
<u>/s/ Michael S. Sitrick</u> Michael S. Sitrick	Director	February 26, 2021
<u>/s/ Kirk K. Calhoun</u> Kirk K. Calhoun	Director	February 26, 2021
<u>/s/ Michael Blaszyk</u> Michael Blaszyk	Director	February 26, 2021
<u>/s/ Deanna Wise</u> Deanna Wise	Director	February 26, 2021

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Patrick Soon-Shiong, certify that:

1. I have reviewed this Annual Report on Form 10-K of NantHealth, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 26, 2021

By: /s/ Patrick Soon-Shiong
Dr. Patrick Soon-Shiong
Chairman, Chief Executive Officer and Director
(Principal Executive Officer)

**CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Bob Petrou, certify that:

1. I have reviewed this Annual Report on Form 10-K of NantHealth, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 26, 2021

By: /s/ Bob Petrou
Bob Petrou
Chief Financial Officer
(Principal Financial and Accounting Officer)

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), I, Patrick Soon-Shiong, hereby certify that, to my knowledge:

- (i) the Company's Annual Report on Form 10-K for the year ended December 31, 2020 to which this Certification is attached as Exhibit 32.1 (the "Report") fully complies with the requirements of section 13(a) or 15(d) of the Exchange Act, and
- (ii) that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of NantHealth, Inc.

Date: February 26, 2021

By: /s/ Patrick Soon-Shiong

Dr. Patrick Soon-Shiong
Chairman, Chief Executive Officer and Director
(Principal Executive Officer)

This certification accompanies the Annual Report on Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of NantHealth, Inc. under the Securities Act of 1933, as amended, or the Exchange Act (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.

**CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), I, Bob Petrou, hereby certify that, to my knowledge:

- (i) the Company's Annual Report on Form 10-K for the year ended December 31, 2020 to which this Certification is attached as Exhibit 32.2 (the "Report") fully complies with the requirements of section 13(a) or 15(d) of the Exchange Act, and
- (ii) that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of NantHealth, Inc.

Date: February 26, 2021

By: /s/ Bob Petrou

Chief Financial Officer

(Principal Financial and Accounting Officer)

This certification accompanies the Annual Report on Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of NantHealth, Inc. under the Securities Act of 1933, as amended, or the Exchange Act (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.