MEDPACE

2023 ANNUAL REPORT

EXECUTIVE OFFICERS

- **August J. Troendle**
  Chief Executive Officer and
  Chairman of the Board of Directors
- **Jesse J. Geiger**
  President
- **Susan E. Burwig**
  Executive Vice President, Operations
- **Stephen P. Ewald**
  General Counsel and Corporate Secretary
- **Kevin M. Brady**
  Chief Financial Officer and Treasurer

BOARD MEMBERS

- **August J. Troendle**
  Chairman of the Board of Directors
- **Brian T. Carley**
  Audit Committee, Chair
  Nominating and Governance Committee
- **Fred B. Davenport Jr.**
  Lead Director
  Compensation Committee, Chair
  Audit Committee
  Nominating and Governance Committee
- **Femida H. Gwadry-Sridhar**
  Nominating and Governance Committee
- **Ashley M. Keating**
  Nominating and Governance Committee
- **Robert O. Kraft**
  Audit and Compensation Committees
  Nominating and Governance Committee
- **Cornelius P. "Neal" McCarthy III**
  Compensation Committee
  Nominating and Governance Committee

CORPORATE OFFICE

Medpace Holdings, Inc.
5375 Medpace Way
Cincinnati, Ohio 45227
513-579-9911
www.medpace.com

TRANSFER AGENT

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718-921-8124
Email: HelpAST@equiniti.com
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MEDIA INQUIRIES

Julie Hopkins
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COMMON STOCK LISTING

NASDAQ under ticker symbol MEDP

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Deloitte & Touche LLP
50 W 5th St.
Suite 200
Cincinnati, Ohio 45202

The information included in this Annual Report on Form 10-K as filed with the U.S. Securities and Exchange Commission on February 13, 2024 presents information as of and for the fiscal year ended December 31, 2023 and, accordingly, does not include information for updates or developments that are not required to be otherwise reported in the Annual Report on Form 10-K for the fiscal year ended December 31, 2023.

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, 2023

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: 001-37856

Medpace Holdings, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**32-0434904**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

5375 Medpace Way, Cincinnati, OH 45227
(Address of principal executive offices) (Zip Code)

(513) 579-9911
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock $0.01 par value	**MEDP**	**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 Section 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 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 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.

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
Emerging growth company	☐		

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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

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 equity held by non-affiliates of the registrant, based upon the closing sale price as reported on the Nasdaq Global Select Market on June 30, 2023, the last business day of the registrant's most recently completed second fiscal quarter, was approximately $5.6 billion. For purposes of this computation, shares of the registrant's common stock held by each executive officer, director, and each person known to the registrant to own 10% or more of the outstanding voting power reporting such ownership on Schedule 13D have been excluded in that such persons are affiliates.

Indicate the number of shares outstanding of each of the issuer's classes of Common Stock, as of the latest practicable date.

Class	**Number of Shares Outstanding**
Common Stock $0.01 par value	**30,759,281 shares outstanding as of February 9, 2024**

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement to be filed with the Securities and Exchange Commission relating to the 2024 Annual Meeting of Stockholders are incorporated herein by reference into Part III of this Annual Report on Form 10-K to the extent stated herein.

MEDPACE HOLDINGS, INC. AND SUBSIDIARIES
ANNUAL REPORT ON FORM 10-K
FOR FISCAL YEAR ENDED DECEMBER 31, 2023

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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements. We intend such forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. All statements other than statements of historical facts contained herein, including, without limitation, statements regarding our results of operations; financial position and performance; liquidity and our ability to fund our business operations and initiatives; capital expenditure and debt service obligations; business strategies, plans and goals, including those related to marketing, acquisitions and expansion of our business; product approvals and plans; industry trends; general economic conditions, including inflation, interest rates and other pricing pressures that could impact our operating margins; expectations regarding consumer behaviors and trends; our culture and operating philosophy; human resource management; arrangements with and delivery of our services to the customers; conversion of backlog; dividend policy; legal proceedings; and our objectives for future operations, are forward-looking statements. The words "expect," "anticipate," "intend," "plan," "believe," "seek," "see," "will," "would," "target," "likely", "opportunity," "may," "could," "outlook," "can," "trend," "might," "drives," "hope," "potential," "project," "predict," and similar expressions are intended to identify forward-looking statements. However, the absence of these words does not mean that a statement is not forward-looking. Forward-looking statements are based largely on our current expectations and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy, short-term and long-term business operations and objectives, and financial needs. Any forward-looking statement speaks only as of the date it is made. These forward-looking statements are subject to inherent uncertainties, risks, changes in circumstances and other important factors that are difficult to predict. Moreover, we operate in a very competitive and rapidly changing environment in which new risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all important factors on our business or the extent to which any factor, or combination of such factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed may not occur and our financial condition and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. In other words, these statements are not guarantees of future performance and inherently involve a wide range of risks and uncertainties that are difficult to predict. We caution you therefore against relying on these forward-looking statements. Some of the important factors that could cause actual results to differ from our expectations include regional, national, or global political, economic, business, competitive, market and regulatory conditions and the other important factors included in this Annual Report on Form 10-K in "Item 1A Risk Factors," "Item 7 Management's Discussion and Analysis of Financial Condition and Results of Operations," and "Item 7A Quantitative and Qualitative Disclosures About Market Risk." We qualify all of our forward-looking statements by these cautionary statements. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise. For a further discussion of the risks relating to our business, see "Item 1A Risk Factors" of Part I of this Annual Report on Form 10-K.

WEBSITE AND SOCIAL MEDIA DISCLOSURE

We use our website (www.medpace.com) and our corporate Facebook, YouTube, LinkedIn, Vimeo and Instagram accounts as channels of distribution of company information. The information we post through these channels may be deemed material. Accordingly, investors should monitor these channels, in addition to following our press releases, Securities and Exchange Commission, or SEC, filings and public conference calls and webcasts. The contents of our website and social media channels are not, however, a part of this report.

TRADEMARKS

We own or have the rights to use various trademarks referred to in this Annual Report on Form 10-K, including, among others, Medpace, ClinTrak and Intellipace and their respective logos. Solely for convenience, we may refer to trademarks in this Annual Report on Form 10-K without the TM and ® symbols. Such references are not intended to indicate, in any way, that we will not assert, to the fullest extent permitted by law, our rights to our trademarks. Other trademarks appearing in this Annual Report on Form 10-K are the property of their respective owners.

MARKET AND INDUSTRY INFORMATION

Market data used throughout this Annual Report on Form 10-K is based on management's knowledge of the industry and the good faith estimates of management. All of management's estimates presented herein are based on industry sources, including analyst reports and management's knowledge. We also relied, to the extent available, upon management's review of independent industry surveys and publications prepared by a number of sources and other publicly available information. We are responsible for all of the disclosure in this Annual Report on Form 10-K and while we believe that each of the publications, studies and surveys used throughout this Annual Report on Form 10-K are prepared by reputable sources, we have not independently verified market and industry data from third-party sources.

All of the market data used in this Annual Report on Form 10-K involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. While we believe the estimated market position, market opportunity and market size information included in this Annual Report on Form 10-K is generally reliable, such information, which in part is derived from management's estimates and beliefs, is inherently uncertain and imprecise and has not been verified by any independent source. Projections, assumptions and estimates of our future performance and the future performance of the industry in which we operate are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described in "Item 1A Risk Factors" of Part I of this Annual Report on Form 10-K and elsewhere in this Annual Report on Form 10-K. These and other factors could cause results to differ materially from those expressed in our estimates and beliefs and in the estimates prepared by independent parties. See "Forward-Looking Statements" above.

GLOSSARY

We define the terms below that appear throughout this report as follows:

"Large pharmaceutical companies." Large pharmaceutical companies represent the top 20 pharmaceutical companies by worldwide prescription drug sales as classified by Evaluate Ltd via EvaluatePharma©.

"Mid-sized biopharmaceutical companies." Mid-sized biopharmaceutical companies represent biopharmaceutical companies with at least $250 million in sales, based on publicly available data and management's knowledge, that are not classified as a top 20 pharmaceutical company by Evaluate Ltd via EvaluatePharma©.

"Small biopharmaceutical companies." Small biopharmaceutical companies represent biopharmaceutical companies that have less than $250 million in sales, based on publicly available data and management's knowledge.

"Phase I." Phase I trials are typically conducted in healthy individuals or, on occasion, in patients, and typically involve 20 to 100 subjects and range from a few months to several years. These trials are designed to establish the basic safety, dose tolerance, absorption, metabolism, distribution and excretion of the clinical product candidate, the side effects associated with increasing doses, and if possible, early evidence of effectiveness. If the trial establishes the basic safety and metabolism of the clinical product candidate, Phase II trials are generally initiated.

"Phase II." Phase II trials are conducted in a limited population of patients with the disease or condition that the clinical product candidate is intended to treat. These trials typically test a few hundred patients and last on average one to two years. Phase II trials are typically designed to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the clinical product candidate for specific targeted diseases or conditions, and to determine dose tolerance, optimal dosage and dosing schedule. Phase II trials are sometimes divided into two phases: Phase IIa trials typically evaluate the dose response of the clinical product candidate and Phase IIb trials typically evaluate the efficacy of the clinical product candidate at the prescribed doses. If the Phase II trials indicate that the clinical product candidate may be safe and effective, Phase III trials are generally initiated.

"Phase III." Phase III trials evaluate the clinical product candidate in significantly larger and more diverse patient populations than Phase I and II trials and are conducted at multiple, geographically dispersed sites. On average, this phase lasts from one to four years. Depending on the size and complexity, Phase III CRO contracts may include multiple sequential trials. During this phase, the clinical product candidate's overall benefit/risk ratio and the basis for product approval are established. If the clinical product candidate successfully completes Phase III, then the sponsor may submit a New Drug Application, or NDA, or Biologics License Application for approval by the United States Food and Drug Administration, or FDA, or a similar marketing authorization application for approval by non-U.S. regulatory agencies.

"Phase IV." Phase IV or "post-approval" trials are intended to monitor the drug's long-term risks and benefits, to analyze different dosage levels, to evaluate different safety and efficacy parameters in target populations or to substantiate marketing claims. Phase IV trials typically enroll thousands of patients and last from six months to several years. The FDA may require Phase IV testing and surveillance programs to monitor the effect of approved drugs which have been commercialized, and the FDA has the power to prevent or limit further marketing of a product based on the results of post-marketing programs.

Part I

Item 1. Business

Overview

We are one of the world's leading clinical contract research organizations, or CROs, by revenue, solely focused on providing scientifically-driven outsourced clinical development services to the biotechnology, pharmaceutical and medical device industries. Our mission is to accelerate the global development of safe and effective medical therapeutics. We differentiate ourselves from our competitors by our disciplined operating model centered on providing full-service Phase I-IV clinical development services and our therapeutic expertise. We believe this combination results in timely and cost-effective delivery of clinical development services for our customers. We believe that we are a partner of choice for small and mid-sized biopharmaceutical companies based on our ability to consistently utilize our full-service, disciplined operating model to deliver timely and high-quality results for our customers. Accordingly, our business strategy aims to continue to expand our market share in the growing Phase I-IV CRO market as we conduct clinical trials across all major therapeutic areas, with particular strength in Oncology, Metabolic, Cardiology, Antiviral and Anti-infective (AVAI) and Central Nervous System (CNS).

Our Revenues: Markets and Clinical Development Services

Before a new drug can be commercialized, it often must undergo extensive pre-clinical and clinical testing and regulatory review to verify safety and efficacy. CROs provide a comprehensive range of product development services for Phase I-IV clinical trials. These clinical trials are separated into distinct phases in order to thoroughly evaluate the product. We generate our revenues by providing a full suite of services supporting the entire clinical development process from Phase I to Phase IV across a wide range of therapeutic areas.

Medical Department: Our medical department consists of therapeutic leads who provide strategic direction for study design and planning, train operational staff, work with primary investigators, provide medical monitoring and meet with regulatory agencies.

Clinical Trial Management: Our team of clinical trial managers (CTMs) lead all aspects of study execution and drive accountability across the functional team members. Our CTMs use ClinTrak, our proprietary information management system for clinical trials, which is integrated with our standard operating procedures (SOPs), allowing the CTMs to access real-time study metrics.

Data-Driven Feasibility: Our dedicated feasibility team of clinical experts analyze specific protocols, using many data sources to determine countries and sites that are most appropriate for the study.

Study Start-Up: Our global Study Start-Up staff conducts trial start up activities, including study documentation submission processes to independent Institutional Review Boards, or IRBs, ethics committees and to ex-US competent authorities. Our study start-up team includes fully dedicated budget and legal associates to ensure focused negotiations and execution of site contracts.

*Patient Recruitment and Retention**:*** We navigate the complexities of patient recruitment and retention by providing strategic solutions that address clinical program needs. Our patient recruitment and retention department identify patient motivators and any potential barriers to join and remain in the clinical research study.

Clinical Monitoring: Our clinical research associates, or CRAs, provide site management services including in-house, onsite and virtual monitoring. Their knowledge of local regulations and laws, in addition to Good Clinical Practice, or GCP, and International Council on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use, or ICH, guidelines ensure compliance and data quality. CRAs report into a global matrix structure and receive comprehensive, hands-on training in an individualized curriculum consisting of in-house and field-based training, supplemented with clinical research department core rotations and ongoing study-specific training.

Risk-Based Monitoring: We support a comprehensive approach to monitoring to ensure adequate protection of the rights, welfare, and safety of human subjects and the quality and integrity of the study. This approach

focuses on prevention and mitigation of important and likely risks and is part of the overarching surveillance utilized to manage studies.

Regulatory Affairs: We provide expert strategic, operational, and tactical regulatory guidance, and create thorough scientifically-grounded regulatory compliant documentation at each stage of the drug and biologics development process to regulatory agencies around the globe.

Medical Writing: Medical writers work closely with our medical experts, biostatisticians, and other members of the study team to develop study protocols, clinical and statistical study reports, and integrated submission documents according to regulatory guidelines.

Biometrics and Data Sciences: We provide high-quality data collected during clinical trials that supports regulatory submissions, including NDAs or Biologics License Application for approval by the FDA, or a similar marketing authorization application for approval by non-U.S. regulatory agencies. Our data science team develops detailed specifications for the collection, organization, validation, analysis and quality control of clinical trial data. Our biostatisticians provide trial design consulting, statistical methodology recommendations, programming expertise and reporting accuracy.

Pharmacovigilance: Our safety and pharmacovigilance group collects, evaluates, analyzes and reports safety information. We provide global adverse event management, physician reviewed safety narrative writing and custom safety surveillance.

Core Laboratory: Our core laboratory services include both imaging services and cardiovascular core laboratory services. We partner with imaging experts from major academic and clinical institutions involved in research to provide image reading in a secure environment utilizing identical software and workstations integrated into ClinTrak allowing for prompt turnaround and oversight. Our cardiovascular core laboratory provides state of the art standardized electrocardiogram services and data analysis.

Central Laboratory: Our Central Laboratory operates in four locations, including Cincinnati, Ohio; Leuven, Belgium; Shanghai, China; and Singapore. The Central Laboratory has longstanding core competency in specialized esoteric testing, including biomarkers for efficacy in addition to standard assay offerings. We also provide biorepository services offering solutions for comprehensive specimen life cycle management, and molecular and genetic testing for detection of pathogenic events at the genome level including viral load and viral shedding.

Bioanalytical Laboratory. Our Bioanalytical Laboratory is located on our clinical research campus in Cincinnati, Ohio. Working in a Good Laboratory Practice compliant setting following FDA and European Medicines Agency, or EMA, guidelines, the Bioanalytical Laboratory delivers method transfer, development, validation, sample analysis and metabolite screening and identification of pre-clinical and clinical biological samples with expertise in developing proprietary, highly scientific, esoteric and sensitive tests for small and large molecules.

Clinics: Our clinics conduct studies in normal healthy volunteers, special populations, and patient populations over a spectrum of diseases and is located on our clinical research campus in Cincinnati, Ohio.

Quality Assurance: Our quality assurance team works closely with study teams to ensure compliance with protocols, SOPs and regulatory guidelines to ultimately protect research subject safety as well as the integrity and validity of study data. Our quality assurance team also provides services including regulatory training, internal system audits, SOP oversight, hosting of audits and regulatory inspections, as well as performs third party audits of critical vendors and investigative sites on behalf of our customers.

Customers

We have a well-diversified, attractively-positioned customer base that includes small biopharmaceutical companies, mid-sized biopharmaceutical companies and large pharmaceutical companies.

We have in the past and may in the future enter into arrangements with our customers or other drug, biologic or medical device companies in which we take on payment risk by making strategic investments in our customers or other drug

companies, providing flexible payment terms or fee financing to customers or other companies, or entering into other risk sharing arrangements on trial execution.

For a discussion of our net new business awards and backlog, see Item 7. “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Net New Business Awards and Backlog” of Part II of this Annual Report on Form 10-K.

Sales and Marketing

We employ an integrated sales and marketing team to sell our services to biotechnology, pharmaceutical and medical device companies. The team consists of professional business development representatives focused on securing business from both new and existing customers, through a consultative and strategic sales approach. We embed our medical and scientific experts from the beginning of the sales process when we first engage potential customers.

As part of our sales strategy, our team focuses on a customer segmentation model. Our team targets and engages customers in our addressable market, matches customer characteristics with therapeutic fit and maintains a mindset of full-service outsourcing. Our structured and disciplined approach facilitates strong account evaluation, which results in increased focus by the sales team, the management of sales force effectiveness and the creation of a process whereby both marketing and sales operate under the same guiding principles.

We consult collaboratively with our customers and help optimize timely completion of their clinical trials and programs, in part, because we engage our therapeutic experts, regulatory affairs experts and operations team throughout the clinical trial process. Our sales team is then able to take the study design, regulatory plan and execution plan discussed up front and carry that through to the proposal and provide a final concept during one-on-one customer discussions and final CRO evaluations.

Our marketing team supports the business development function in three key areas, generating brand awareness through customized campaigns and web-site development, conference planning and lead generation through market research and business intelligence analysis. All of our sales and marketing data are housed within a third party customer relationship management tool that provides us the analytics we need to make sales planning and sales management decisions.

Competition

We compete primarily against other full-service CROs as well as services provided by in-house research and development (R&D) departments of biopharmaceutical companies. Our major CRO competitors include IQVIA Holdings Inc., ICON plc, PPD, Inc. (now part of Thermo Fisher Scientific Inc.), Fortrea, Inc., and numerous specialty and regional CROs.

We generally compete on the basis of a number of factors, including experience within specific therapeutic areas, quality of staff and services, reliability, range of provided services, ability to recruit principal investigators and patients into studies expeditiously, ability to organize and manage large-scale, global clinical trials, global presence with strategically located facilities, speed to completion, price and overall value. We believe we compete effectively with our competitors across these factors, particularly due to our full-service operating model, our deep therapeutic expertise in areas that are among the largest, most complex and fastest growing in pharmaceutical development, our global platform and our experienced and committed management team.

The CRO industry remains fragmented, with several hundred smaller, narrowly focused service providers and a small number of full-service companies with global capabilities. We believe there are significant barriers to others becoming a global provider offering a broad range of services and products including the cost and experience necessary to develop strong therapeutic areas, expertise to manage complex clinical programs, infrastructure to support large global programs, ability to deliver high-quality services and expertise required to prepare regulatory submissions in numerous jurisdictions.

Government Regulation

Development of Drugs, Biologics and Medical Devices

The development of drugs, biologics and medical devices is highly regulated in the United States and other countries. Our services are subject to varying regulatory requirements designed to ensure the quality and integrity of the pre-clinical and clinical trial process. In the United States, the FDA has primary authority to regulate these activities, in addition to the approval process, and the subsequent manufacturing, safety, labeling, storage, record keeping and marketing for these

products, which are the responsibility of our customers. Before a marketing application for a drug is ready for submission to regulatory authorities, the candidate drug must often undergo rigorous testing in clinical trials. In the United States, these trials must be conducted in accordance with the Federal Food, Drug, and Cosmetic Act, its implementing regulations, and other federal and state requirements that require the drug to be tested and studied in certain ways prior to approval. The FDA has similar authority and requirements with respect to the clinical testing of biological products and medical devices. Before a human clinical trial may begin in the United States, the manufacturer or sponsor of the clinical product candidate must file an Investigational New Drug Application (IND) with the FDA, which contains, among other things, the results of pre-clinical tests, manufacturer information and other analytical data. A separate submission to an existing IND must also be made for each successive clinical trial conducted during product development. Each clinical trial must be conducted pursuant to, and in accordance with, an effective IND. Each human clinical trial we conduct is subject to the oversight of an IRB, which is an independent committee that has the regulatory authority to review, approve and monitor a clinical trial for which the IRB has responsibility. The FDA and IRB receive reports on the progress of each phase of clinical testing and may require the modification, suspension, or termination of clinical trials if, among other things, an unreasonable risk is presented to patients or if the design of the trial is insufficient to meet its stated objective. In addition, information about certain clinical trials must be made publicly available on the federal government website, www.clinicaltrials.gov.

In the United States, GCP regulations govern the design, conduct, performance, monitoring, auditing, recording, analysis, and reporting of clinical trials. In order to comply with GCP and other requirements, we must, among other things:

- comply with specific requirements governing the selection of qualified principal investigators and clinical research sites;
- obtain specific written commitments from principal investigators;
- obtain IRB review and approval and supervision of the clinical trials by an independent review board or ethics committee;
- obtain a favorable opinion from regulatory agencies to commence a clinical trial;
- verify that appropriate patient informed consents are obtained before the patient participates in a clinical trial;
- ensure that adverse drug reactions resulting from the administration of a drug or biologic during a clinical trial are medically evaluated and reported in a timely manner;
- monitor the validity and accuracy of data;
- monitor drug or biologic accountability at clinical research sites; and
- verify that principal investigators and clinical trial staff maintain records and reports and permit appropriate governmental authorities access to data for review.

Clinical trials conducted outside the United States are subject to the laws and regulations of the country where the trials are conducted. These laws and regulations may or may not be similar to the laws and regulations administered by the FDA and other laws and regulations regarding the protection of patient safety and privacy and the control of clinical trial pharmaceuticals, medical devices or other clinical trial materials. Within the EU, these requirements are enforced by the EMA and requirements may vary slightly from one member state to another. In the United Kingdom, clinical trials are regulated by the Medicines and Healthcare Products Regulatory Agency (MHRA). In Canada, clinical trials are regulated by the Health Products and Food Branch of Health Canada as well as provincial regulations. Similar requirements also apply in other jurisdictions, including countries outside the EU and countries in Asia and Latin America where we operate or where our customers may intend to apply for marketing authorization. Clinical trials conducted outside the United States also may be subject to FDA regulation if the clinical trials are conducted pursuant to an IND or an Investigational Device Exemption for a product candidate that will seek FDA approval or clearance. In addition, clinical trial sponsors follow ICH E6 guidelines as a principle for GCP.

The clinical trial customer and the parties conducting the clinical trials share in responsibilities to ensure that all applicable legal and regulatory requirements are fulfilled. Many of the functions we regularly perform in the conduct of clinical trials subject us directly to regulations (e.g., compliance with GCP), and in some circumstances, we will take on legal and regulatory responsibility either through a transfer of obligations to us from our clinical trial customers or our acting as local legal representative for certain of our clinical trial customers. We may be subject to regulatory action if we fail to comply with these requirements. Failure to comply with certain regulations may also result in the termination of ongoing research and disqualification of data collected during the clinical trials. For example, violations of GCP could result, depending on the nature of the violation and the type of product involved, in the issuance of a warning letter, suspension or termination of a clinical trial, refusal of the FDA to approve clinical trial or marketing applications or withdrawal of such applications, injunction, seizure of investigational products, civil penalties, criminal prosecutions or debarment from assisting in the submission of new drug applications.

We monitor our clinical trials to test for compliance with applicable laws and regulations in the United States and the foreign jurisdictions in which we operate. We have adopted SOPs that are designed to satisfy regulatory requirements and serve as a mechanism for controlling and enhancing the quality of our clinical trials. In the United States, our procedures were developed to ensure compliance with GCP and associated requirements.

Health Information Privacy

The confidentiality of personal health information, including patient-specific information collected during clinical trials, is heavily regulated in the United States and other countries. The U.S. Department of Health and Human Services has promulgated rules under the Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 and their implementing regulations, including the Privacy and Security Rules, or collectively, HIPAA, that govern the use, handling and disclosure of personally identifiable medical information. These regulations also establish procedures for the exercise of an individual's rights and the methods permissible for de-identification of health information. HIPAA applies to "covered entities," which include certain types of healthcare providers, as well as service providers to covered entities which access protected health information, known as "business associates." Two of our subsidiaries, Medpace Clinical Pharmacology, LLC and C-MARC, LLC, are covered entities under HIPAA. Further, many investigators with whom we are involved in clinical trials are also directly subject to HIPAA as covered entities. There are instances where we may be considered a business associate of a covered entity investigator, and we have signed business associate agreements with some investigators. If we are determined to be a business associate, we would be directly liable for any breaches of protected health information and other HIPAA violations. We are also liable contractually under any business associate agreements we have signed with covered entities. In addition, we are also subject to privacy legislation in the jurisdictions in which we operate which includes privacy legislation in the EU under the 95/46/EC Privacy Directive on the protection and free movement of personal data, as replaced by the General Data Protection Regulation from early 2018 onwards.

Health Industry Arrangements

The conduct of pre-clinical and clinical trials may be subject to laws and regulations that are intended to prevent the misuse of government healthcare program funding. In the United States, these laws include, among others, the False Claims Act, which prohibits submitting or causing the submission of false statements or improper claims for government healthcare program payments; and the Anti-Kickback statute, which prohibits paying, offering to pay or receiving payment with the intent to induce the referral of services or items that are covered under a federal healthcare program. Violations of these laws and regulations may incur administrative, civil, and criminal penalties.

Environmental Regulation and Liability

We are subject to various laws and regulations relating to the protection of the environment and human health and safety in the countries in which we do business, including laws and regulations governing the management and disposal of hazardous substances and wastes, the cleanup of contaminated sites and the maintenance of a safe workplace. Our operations include the use, generation and disposal of hazardous materials and medical wastes. We may, in the future, incur liability under environmental statutes and regulations for contamination of sites we own or operate (including contamination caused by prior owners or operators of such sites), the off-site disposal of hazardous substances and for personal injuries or property damage arising from exposure to hazardous materials from our operations. We believe that we have been and are in substantial compliance with all applicable environmental laws and regulations and that we currently have no liabilities under such environmental requirements that could reasonably be expected to materially harm our business, results of operations or financial condition.

Intellectual Property

We develop and use a number of proprietary methodologies, analytics, systems, technologies and other intellectual property in the conduct of our business. We rely upon a combination of confidentiality policies, nondisclosure agreements and other contractual arrangements to protect our trade secrets, and copyright and trademark laws to protect other intellectual property rights. We have obtained or applied for trademarks and copyright protection in the United States and in a number of foreign countries. Our material trademarks include Medpace and ClinTrak. Although the duration of trademark registrations varies from country to country, trademarks generally may be renewed indefinitely so long as they are in use and/or their registrations are properly maintained, and so long as they have not been found to have become generic.

Human Capital

As of December 31, 2023 we had approximately 5,900 employees located across 42 countries. As of December 31, 2022 and 2021, we had approximately 5,200 and 4,500 employees, respectively. Our associates are our most important asset and we recognize the importance of motivating and rewarding our associates by providing them with competitive benefits as part of their overall compensation and benefits package. We have developed comprehensive benefits packages that deliver quality and value while satisfying the diverse needs of our workforce and meeting local market requirements and expectations.

Attracting, developing, retaining and advancing talent at all levels at Medpace is a key component to sustaining our organic growth and continuing our mission. We strive to maintain a culture of diversity and inclusion in which people from all backgrounds can fully contribute to the growth and success of our business. As such, we are committed to maintaining a respectful work environment, providing equal opportunity and the fair treatment of all individuals on the basis of merit, without regard for gender, race, color, creed, religion, family status, age, national origin or ancestry, physical or mental disability, medical condition, veteran status, citizenship, sexual orientation, gender identity, or any other protected group status. Anti-discrimination, anti-harassment and anti-retaliation policies are applicable to all employees and are set forth in the Medpace Code of Conduct. All employees are responsible for upholding the Medpace Code of Conduct, which forms the foundation of our personnel and ethics policies and practices.

We have developed a strong record of hiring and developing women at all levels of the organization. Approximately 67% of our employees globally are women representing 65% of management and 51% of director level and above positions. In addition, of our U.S. based employees, approximately 21% are non-white, including 16% of management. None of our US employees are covered by a collective bargaining agreement specific to our Company.

Our commitment to compliance, people, safety, communities and the environment is further described in our 2023-2024 Corporate Responsibility Report published within the Investor Relations section of our website at investor.medpace.com. That report is not part of this Annual Report on Form 10-K.

Recruitment and Retention

The success of our business depends upon our ability to attract and retain qualified professional, scientific and technical staff. The level of competition among employers in the United States and globally for skilled personnel, particularly for those with Ph.D., M.D. or equivalent degrees or training, is high. We believe that our brand recognition and our multinational presence are advantages in attracting qualified candidates. We also believe that the wide range of clinical trials in which we participate allows us to offer broad experience to clinical researchers. Our disciplined and centralized approach to hiring, training, and development of employees has fostered, and we believe will continue to foster, strong employee loyalty. Retention of experienced employees is important to maintaining our growth and our high quality of service over time.

As our associates develop knowledge and skills that will contribute to the wider Medpace mission and business success, we believe in rewarding strong performance with compensatory and non-compensatory recognition. We have a robust career path and compensation structure that acknowledges associate performance and development at all levels of the organization. Of the 384 management-level roles that were newly filled in 2022, approximately 54% of these roles were filled by our pipeline of internal talent.

Development

We have a history of identifying talented individuals and training them to excel in our disciplined operating model. Dedicated training and development teams are focused on creating, facilitating, and evaluating the success of training programs across functional areas. We have invested in the development and implementation of a global learning management system which is universally used to record regulatory compliance, capture attendance at instructor led training sessions, deliver online training content, proctor online exams, and to facilitate other training activities.

Safety

Safety is at the core of Medpace's mission. We have a robust incident reporting procedure for work-related injuries and illnesses and our lab operations follow all additional Health and Safety requirements. Our facilities are equipped with access control systems to maintain proper physical security for our associates and company assets, as well as on-site security personnel in key offices. In addition to physical security, we have programs and training in place for First Aid,

CPR and Fire Wardens for safe evacuations. We are proud of our extremely low incident rates and remain committed to continuously monitoring campus- and policy-related measures that can be incorporated in order to further reduce risk for our associates.

Liability and Insurance

We may be liable to our customers for any failure to conduct their clinical trials properly according to the agreed-upon protocol and contract. If we fail to conduct a clinical trial properly in accordance with the agreed-upon procedures, we may have to repeat a clinical trial or a particular portion of the services at our expense, reimburse the customer for the cost of the services and/or pay additional damages.

At our Phase I clinic, we study the effects of drugs on healthy volunteers. In addition, in our clinical business we, on behalf of our customers, contract with physicians who render professional services, including the administration of the substance being tested to participants in clinical trials, many of whom are seriously ill and are at great risk of further illness or death as a result of factors other than their participation in a trial. As a result, we could be held liable for bodily injury, death, pain and suffering, loss of consortium or other personal injury claims and medical expenses arising from a clinical trial. In addition, we sometimes engage the services of vendors necessary for the conduct of a clinical trial, such as laboratories or medical diagnostic specialists. Because these vendors are engaged as subcontractors, we are responsible for their performance and may be held liable for damages if the subcontractors fail to perform in the manner specified in their contract.

To reduce our potential liability, and as a requirement of the GCP regulations, informed consent is required from each volunteer and patient. In addition, our customers provide us with contractual indemnification for all of our service related contracts. These indemnities generally do not, however, protect us against certain of our own actions such as those involving negligence or misconduct. We maintain insurance designed to provide coverage for ordinary risks associated with our operations and our ordinary indemnification obligations, which we believe to be customary for our industry. Our business, financial condition and operating results could be harmed if we were required to pay damages or incur defense costs in connection with a claim that is not indemnified, that is outside the scope of an indemnity or where the indemnity, although applicable, is not honored in accordance with its terms.

Available Information

We are subject to the informational requirements of the Exchange Act and, in accordance therewith, file reports, including annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission (SEC). Copies of our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and our Proxy Statements for our annual meetings of stockholders, and any amendments to those reports, as well as Section 16 reports filed by our insiders, are available free of charge on our website as soon as reasonably practicable after we file the reports with, or furnish the reports to the SEC. Our website address is http://www.medpace.com, and our investor relations website is located at investor.medpace.com. Information on our website is not incorporated by reference herein. The SEC maintains an Internet site (http://www.sec.gov) containing reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. You should consider carefully the risks and uncertainties described below, together with the other information included in this report. The occurrence of any of the following risks may materially and adversely affect our business, financial condition, results of operations and future prospects. In these circumstances, the market price of our common stock could decline. Other events that we do not currently anticipate or that we currently deem immaterial may also affect our business, prospects, financial condition and results of operations.

Risk Factor Summary

The following summarizes the most material risks that make an investment in our common stock risky.

Business and Economic Risks

- The potential loss, delay or non-renewal of our contracts, or the non-payment by our customers for services that we have performed, could adversely affect our results.

- Our backlog may not convert to net revenue at our historical conversion rates.
- Our operating results have historically fluctuated between fiscal quarters and years and may continue to fluctuate in the future, which may adversely affect the market price of our stock.
- Our operating margins could decrease due to increased pricing pressure or other pressures, if we are unable to either achieve efficiencies in our operating expenses or grow revenues at a rate faster than expenses.
- Our customer or therapeutic area concentration may have a material adverse effect on our business, financial condition, results of operations or cash flows.
- We bear financial risk if we underprice our fixed-fee contracts or overrun cost estimates, and our financial results can also be adversely affected by failure to receive approval for change orders or delays in documenting change orders.
- Our business and operations may be impacted in the future by epidemics, pandemics or widespread public health crisis.
- If we are unable to successfully execute our growth strategies or manage our growth effectively, our results of operations or financial condition could be adversely affected.
- If we are unable to recruit suitable investigators and enroll patients for our customers' clinical trials, our clinical development business may suffer.
- The failure of third parties to provide us critical support services could materially adversely affect our business, financial condition, results of operations, cash flows or reputation.
- Current or potential future investments by the Company in our customers' businesses or products could have a negative impact on our financial results.
- Continued evolution and use of machine learning and generative artificial intelligence ("AI"), including risks arising from insufficient human oversight of AI or a lack of controls and procedures monitoring the use of AI in day-to-day operations as well as from potential future competitive disadvantages related to a lack of investment in AI tools, could have a negative impact on our financial results.

Technical and Cybersecurity Risks

- Our business depends on the continued effectiveness and availability of our information systems, including the information systems we use to provide our services to our customers, such as ClinTrak, and failures of these systems may materially limit our operations.
- If the security of confidential information used in connection with our services is breached or otherwise subject to unauthorized access, our reputation and business may be materially harmed.

International Risks

- Our business is subject to international economic, political and other risks that could negatively affect our results of operations and financial condition.
- Due to the global nature of our business, we may be exposed to liabilities under the Foreign Corrupt Practices Act and various other anti-corruption laws, and any allegation or determination that we violated these laws could have a material adverse effect on our business.

Industry Risks

- Outsourcing trends in the biopharmaceutical industry and changes in aggregate expenditures and R&D budgets could adversely affect our operating results and growth rate.
- We may be affected by healthcare reform and potential additional regulatory reforms, which may adversely impact the biopharmaceutical industry or otherwise reduce the need for our services or negatively impact our profitability.
- Consolidation in the biopharmaceutical industry could lead to a reduction in our revenues.
- The biopharmaceutical industry has a history of patent and other intellectual property litigation, and we might be involved in costly intellectual property lawsuits.
- If we do not keep pace with rapid technological changes, our services may become less competitive or obsolete.
- Circumstances beyond our control could cause the CRO industry to suffer reputational or other harm that could result in an industry-wide reduction in demand for CRO services, which could harm our business.

Other Legal, Regulatory, Insurance and Tax Risks

- If we fail to perform our services in accordance with contractual requirements, government regulations and ethical considerations, we could be subject to significant costs or liability and our reputation could be adversely affected.
- Some of our services involve direct interaction with clinical trial patients and operation of a Phase I clinical facility, which could create potential liability that may adversely affect our results of operations and financial condition.
- Our clinical development services could subject us to potential liability that may adversely affect our results of operations and financial condition.
- Our operations involve the use and disposal of hazardous substances and waste which can give rise to liability that could adversely impact our financial condition.
- We act as legal representative and/or data representative for some clients.
- Our insurance may not cover all of our indemnification obligations and other liabilities associated with our operations.
- Our effective income tax rate may fluctuate, which may adversely affect our operations, earnings and earnings per share.
- If we fail to comply with federal, state and foreign healthcare laws, including fraud and abuse laws, we could face substantial penalties and our business, results of operations, financial condition and prospects could be adversely affected.
- Laws and regulations regarding the protection of personal data could result in increased risks of liability or increased cost to us or could limit our service offerings.
- Our business could be harmed from the loss or suspension of a license or imposition of a fine or penalties under, or future changes in, or interpretations of, the law or regulations of the Clinical Laboratory Improvement Act of 1967, and the Clinical Laboratory Improvement Amendments of 1988 (CLIA), or those of other national, state or local agencies in the U.S. and other countries where we operate laboratories.
- Environmental, Social and Governance initiatives could increase our costs, and inaction could harm our reputation and adversely impact our financial results.

Structural and Organizational Risks

- Our Chief Executive Officer and founder controls a substantial amount of our outstanding common stock and his interests may be different from or conflict with those of our other shareholders.
- We are party to transactions with related persons that may increase the risk of allegations of conflicts of interest, and such allegations may impair our ability to realize the benefits we expect from these transactions.

General Risks

- If we lose the services of key personnel or are unable to recruit experienced personnel, our business could be adversely affected.
- Our operations might be affected by the occurrence of a natural disaster or other catastrophic event.

Business and Economic Risks

The potential loss, delay or non-renewal of our contracts, or the non-payment by our customers for services that we have performed, could adversely affect our results.

We experience termination, cancellation and non-renewals of contracts by our customers in the ordinary course of business, and the number and dollar value of cancellations can vary significantly from year to year.

The time between when a clinical trial is awarded and when it goes to contract is typically several months, and prior to a new business award going to contract, our customers can cancel the award without notice. Moreover, once an award goes to contract, most of our customers for clinical trial services can terminate our contracts without cause upon 30 days' notice. Our customers may delay, terminate or reduce the scope of our contracts for a variety of reasons beyond our control, including, but not limited to:

- decisions to forego or terminate a particular clinical trial;
- lack of available financing, budgetary limits or changing priorities;
- actions by regulatory authorities;
- changes in law;
- production problems resulting in shortages of the drug being tested;

- failure of the drug being tested to satisfy safety requirements or efficacy criteria;
- unexpected or undesired clinical results;
- insufficient investigator recruitment or patient enrollment in a trial;
- decisions to downsize product development portfolios due to general economic conditions, market conditions or otherwise;
- dissatisfaction with our performance, including the quality of data provided and our ability to meet agreed upon schedules;
- shift of business to another CRO or internal resources;
- product withdrawal following market launch; or
- shut down of our customers' manufacturing facilities.

As a result, contract terminations, delays and modifications are a regular part of our business. In the event of termination, our contracts often provide for payment to us of fees for services provided up to the point of termination and for close-out activities for winding down the clinical trial, and reimbursement of all non-cancellable expenses. These payments may not be sufficient for us to maintain our profit margins or recover our costs, and termination or non-renewal may result in lower resource utilization rates, including with respect to personnel who we are not able to place on another customer engagement. Historically, cancellations and delays have negatively impacted our operating results.

Clinical trials can be costly and for the year ended December 31, 2023, 78% and 18% of our net revenue was derived from small biopharmaceutical companies and mid-sized biopharmaceutical companies, respectively, which may have limited access to capital. In addition, we provide services to our customers before they pay us for some of our services. There is a risk that we may initiate a clinical trial for a customer, and the customer subsequently becomes unwilling or unable to fund the completion of the trial. In such a situation, notwithstanding the customer's ability or willingness to pay for or otherwise facilitate the completion of the trial, we may be legally or ethically bound to complete or wind down the trial at our own expense.

Because the contracts included in our backlog are generally terminable without cause, we do not believe that our backlog as of any date is necessarily a meaningful predictor of future results. In addition, we may not realize the full benefits of our backlog of contractually committed services if our customers cancel, delay or reduce their commitments under our contracts with them. Thus, the loss or delay of a large contract or the loss or delay of multiple contracts could adversely affect our net revenue and profitability. In addition, the terminability of our contracts puts increased pressure on our quality control efforts, since not only can our contracts be terminated by customers as a result of poor performance, but any such termination may also affect our ability to obtain future contracts from the customer involved and others.

Our backlog may not convert to net revenue at our historical conversion rates.

Backlog represents anticipated future net revenue from net new business awards that have commenced, but have not been completed. Reported backlog will fluctuate based on new business awards, changes in scope to existing contracts, cancellations, revenue recognition on existing contracts and foreign exchange adjustments from non-U.S. dollar denominated backlog. Once work begins on a project, net revenue is recognized over the duration of the project. Projects may be terminated or delayed by the customer or delayed by regulatory authorities for reasons beyond our control. To the extent projects are delayed, the timing of our net revenue could be adversely affected. Moreover, in the event that a customer cancels a contract, we often would be entitled to receive payment for services provided up to the point of cancellation and for close-out activities for winding down the clinical trial, and reimbursement of all non-cancellable expenses. Typically, however, we have no contractual right to the full amount of the future net revenue reflected in our backlog in the event of a permitted contract cancellation or subsequent changes in scope that reduce the value of the contract. The duration of the projects included in our backlog, and the related net revenue recognition, generally range from a few months to several years. Our backlog may not be indicative of our future net revenue, and we may not realize all of the anticipated future net revenue reflected in our backlog. A number of factors may affect the realization of our net revenue from backlog, including:

- the size, complexity and duration of the projects;
- the cancellation or delay of projects; and
- changes in the scope of work during the course of a project.

Fluctuations in our reported backlog levels also result from the fact that we may receive a small number of relatively large projects in any given reporting period that may be included in our backlog. Because of these large projects, our backlog in that reporting period may reach levels that may not be sustained in subsequent reporting periods. Additionally, although an increase in backlog will generally result in an increase in net revenue over time, an increase in backlog at a particular point

in time does not necessarily correspond directly to an increase in net revenue during any particular period, or at all. The extent to which contracts in backlog will result in net revenue depends on many factors, including, but not limited to, delivery against project schedules, scope changes, contract terminations and the nature, duration and complexity of the contracts, and can vary significantly over time.

As we increasingly compete for and enter into large contracts that are more global in nature, there can be no assurance about the rate at which our backlog will convert into net revenue. A decrease in this conversion rate would mean that the rate of net revenue recognized on contracts may be slower than what we have experienced in the past, which could impact our net revenue and results of operations on a quarterly and annual basis. The revenue recognition on larger, more global projects could be slower than on smaller, less global projects for a variety of reasons, including, but not limited to, an extended period of negotiation between the time the project is awarded to us and the actual execution of the contract, as well as an increased timeframe for obtaining the necessary regulatory approvals. Additionally, delayed projects will remain in backlog and will not generate revenue at the rate originally expected. Thus, the relationship of backlog to realized revenues is indirect and may vary significantly over time.

Our operating results have historically fluctuated between fiscal quarters and years and may continue to fluctuate in the future, which may adversely affect the market price of our stock.

Our operating results have fluctuated in previous quarters and years and may continue to vary significantly from quarter to quarter and year to year and are influenced by a variety of factors, such as:

- timing of contract amendments for changes in scope that could affect the value of a contract and potentially impact the amount of net new business awards and net revenue from quarter to quarter;
- commencement, completion, execution, postponement or termination of large contracts;
- contract terms for the billing and recognition of revenue milestones;
- progress of ongoing contracts and retention of customers;
- timing of and charges associated with completion of acquisitions and other events;
- changes in the mix of services delivered, both in terms of geography and type of services;
- customer disputes or other issues that may impact the revenue we are able to recognize or the collectability of our related accounts receivable;
- exchange rate fluctuations;
- adoption of Accounting Standards Updates released by the Financial Accounting Standards Board; and
- timing and ability to hire in advance of future projects

Our operating results for any particular quarter or year are not necessarily a meaningful indicator of future results and fluctuations in our quarterly or yearly operating results could negatively affect the market price and liquidity of shares of our common stock.

Our operating margins could decrease due to increased pricing pressure or other pressures, if we are unable to either achieve efficiencies in our operating expenses or grow revenues at a rate faster than expenses.

Historically, we have been able to generate the operating margins that we do because of our disciplined, full-service operating model. However, we operate in a highly competitive environment, and, if we experience increased levels of competitive pricing pressure, or pricing pressure from the continued rise of inflation, our operating margins may decrease. In addition, we may adapt our operating model to achieve greater levels of growth or in response to investor demands. Such changes could result in lower operating margins.

Our customer or therapeutic area concentration may have a material adverse effect on our business, financial condition, results of operations or cash flows.

Although we did not have any customer that represented 10% or more of our net revenue during the year ended December 31, 2023, we derive approximately 29.5% of our net revenue from our top ten customers. If any large customer decreases or terminates its relationship with us, our business, financial condition, results of operations or cash flows could be materially adversely affected. Also, consolidation in our actual or potential customer base results in increased competition for important market segments and fewer available customer accounts. Additionally, conducting multiple clinical trials for different sponsors in a single therapeutic class, involving similar drugs, biologics or medical devices, may adversely affect our business if some or all of the trials are terminated because of new scientific information or regulatory decisions that affect the products as a class. Moreover, even if these trials are not terminated, they may compete with each other, thereby limiting our potential revenue going forward.

We bear financial risk if we underprice our fixed-fee contracts or overrun cost estimates, and our financial results can also be adversely affected by failure to receive approval for change orders or delays in documenting change orders.

The majority of our Phase I–IV contracts are fixed-fee contracts. We bear the financial risk if we initially underprice our contracts or otherwise overrun our cost estimates. In addition, contracts with our customers are subject to change orders, which we commonly experience and which occur when the scope of work we perform needs to be modified from that originally contemplated by our contract with the customer. Modifications can occur, for example, when there is a change in a key trial assumption or parameter, a significant change in timing or a change in staffing needs. Furthermore, we may be unable to successfully negotiate changes in scope or change orders on a timely basis or at all, which could require us to incur cost outlays ahead of the receipt of any additional revenue. In addition, under US GAAP, we cannot recognize additional revenue anticipated from change orders until appropriate documentation is received by us from the customer authorizing the change. However, if we incur additional expense in anticipation of receipt of that documentation, we must recognize the expense as incurred. Such underpricing, significant cost overruns or delay in documentation of change orders could have a material adverse effect on our business, results of operations, financial condition or cash flows.

Our business and operations may be impacted in the future by epidemics, pandemics or widespread public health crisis.

Epidemics, pandemics or widespread public health crisis may have an adverse effect on our business, operations and financial results. These may adversely affect, our business, in a variety of ways, including, without limitation: the implementation of travel restrictions from U.S. and foreign governments; the shutdown of businesses in countries in which we operate; delays or challenges in patient enrollment and new clinical trial start-up; challenges in clinical site initiation due to difficulties in recruiting clinical site investigators and clinical site staff shortages; and the interruption of key clinical trial activities such as clinical trial site monitoring. These adverse effects could impact study participants and clinical sites and limits our ability to efficiently provide clinical trial services. We are able to work with our customers to develop solutions to limit disruption to clinical trials while following required regulatory guidelines and maintaining quality to ensure the health and well-being of study participants, including alternative assessment methods such as virtual monitoring visits.

Despite our efforts to manage the impacts of COVID-19 or other future outbreaks, including epidemics, pandemics or widespread public health crisis to the Company, the ultimate impacts of these outbreaks also depend on factors beyond our knowledge or control, including the duration and severity of any such outbreak as well as third-party actions taken to contain their spread and mitigate their related public health effects. In the case of COVID-19, the emergence of variants may continue to occur across regions and countries where we operate, resulting in further adverse effects on our business, operations and financial results.

If we are unable to successfully execute our growth strategies or manage our growth effectively, our results of operations or financial condition could be adversely affected.

Our key growth strategies include: continued investment in organic growth, continued maintenance of margins, increasing capture of the high-growth clinical development market, deepening existing and developing new relationships with our core customer segment and attracting, developing and retaining talent. Though we will strive to meet these goals, we may not have or adequately build the competencies necessary to achieve our objectives. In addition, we may not receive market acceptance for our services and we may face increased competition. If we are unable to successfully continue our organic growth, continue to maintain our margins, increase our capture of the clinical development market, deepen existing and develop new relationships with our core customer segment, or attract, develop and retain talent, our future business, reputation, results of operations and financial condition could be adversely affected. The nature and pace of our growth introduces risks associated with quality control and customer dissatisfaction due to delays in performance or other problems. In addition, foreign operations involve the additional risks of assimilating differences in foreign business practices, hiring and retaining qualified personnel and overcoming language barriers. Failure to manage growth effectively could have a material adverse effect on our business.

If we are unable to recruit suitable investigators and enroll patients for our customers' clinical trials, our clinical development business may suffer.

The recruitment of investigators and patients for clinical trials is essential to our business. Investigators are typically located at hospitals, clinics or other sites and supervise the administration of the investigational drug, biologic or device to patients during the course of a clinical trial. Patients typically include people from the communities in which the clinical trials are conducted. Our clinical development business could be adversely affected if we are unable to attract suitable and willing investigators or patients for clinical trials on a consistent basis. For example, if we are unable to engage investigators to conduct clinical trials as planned or enroll sufficient patients in clinical trials, we may need to expend additional funds to obtain access to resources or else be compelled to delay or modify the clinical trial plans. These

considerations might result in additional costs to us or otherwise adversely impact the progress of a clinical trial, our being unable to successfully achieve our projected development timelines, or potentially even lead to the termination of ongoing clinical trials or development of a product.

The failure of third parties to provide us critical support services could materially adversely affect our business, financial condition, results of operations, cash flows or reputation.

We depend on third parties for support services vital to our business. Such support services include, but are not limited to, laboratory services, third-party transportation and travel providers, technology providers, freight forwarders and customs brokers, drug depots and distribution centers, suppliers or contract manufacturers of drugs for patients participating in clinical trials and providers of licensing agreements, maintenance contracts or other services. In addition, we also rely on third-party CROs and other contract clinical personnel for clinical services either in regions where we have limited resources, or in cases where demand cannot be met by our internal staff. The failure of any of these third parties to adequately provide us critical support services could have a material adverse effect on our business, financial condition, results of operations, cash flows or reputation.

Current or potential future investments by the Company in our customers' businesses or products could have a negative impact on our financial results.

We have in the past and may in the future enter into arrangements with our customers or other drug, biologic or medical device companies in which we take on financial risk by making strategic investments in our customers or other drug companies, providing flexible payment terms or fee financing to customers or other companies, entering into other risk sharing arrangements on trial execution, or making direct equity investments in companies. Our financial results would be adversely affected if the amount realized from any such financial arrangement was less than the value of our services or initial investment under the contract related to such arrangement.

Continued evolution and use of machine learning and generative artificial intelligence ("AI"), including risks arising from insufficient human oversight of AI or a lack of controls and procedures monitoring the use of AI in day-to-day operations as well as from potential future competitive disadvantages related to a lack of investment in AI tools, could have a negative impact on our financial results.

The development, adoption, and use for generative AI technologies are still in their early stages and ineffective or inadequate AI development or deployment practices by the Company or third-party developers or vendors could result in unintended consequences. Developing, testing, and deploying resource-intensive AI systems may require additional investment and increase our costs. In addition, any latency, disruption, or failure in systems or infrastructure leveraging AI could result in delays or errors in our offerings.

Technical and Cybersecurity Risks

Our business depends on the continued effectiveness and availability of our information systems, including the information systems we use to provide our services to our customers, such as ClinTrak, and failures of these systems may materially limit our operations.

Due to the global nature of our business and our reliance on information systems to provide our services, we intend to increase our use of web-enabled and other integrated information systems in delivering our services. We already provide access to such an information system, ClinTrak, to certain of our customers in connection with the services we provide to them. As the breadth and complexity of our information systems continue to grow, we will increasingly be exposed to the risks inherent in the development, integration and ongoing operation of evolving information systems, including:

- disruption, impairment or failure of data centers, telecommunications facilities or other key infrastructure platforms;
- intrusions and security breaches of, cyberattacks on and other failures or malfunctions in our critical application systems or their associated hardware; and
- excessive costs, excessive delays or other deficiencies in systems development and deployment.

The materialization of any of these risks may impede the processing of data, the delivery of databases and services and the day-to-day management of our business and could result in the corruption, loss or unauthorized disclosure of proprietary, confidential or other data. While we have disaster recovery plans in place, they might not adequately protect us in the event of a system failure. Despite any precautions we take, damage from fire, floods, hurricanes, power loss, telecommunications

failures, computer viruses, information system intrusions or security breaches and similar events at our facilities or at those of our third party provider that backs up our data centers could result in interruptions in the flow of data to our servers and from our servers to our customers. Corruption or loss of data may result in the need to repeat a trial at no cost to the customer, but at significant cost to us, or result in the termination of a contract or damage to our reputation. Moreover, regulatory authorities may impose requirements on the use of electronic records and signatures for regulatory purposes. For example, FDA's regulations at 21 CFR Part 11 establish the criteria pursuant to which the FDA will consider electronic records and signatures to be trustworthy, reliable, and generally equivalent to paper records and handwritten signatures. Any failures to comply with those regulatory requirements could impact our customers' ability to rely on the data contained in those electronic records in our systems or result in the FDA's rejection of the data. Additionally, in order for our information systems to continue to be effective going forward, we periodically need to upgrade our technology systems and increase our capacity to keep pace with technological developments and our growth as a company. Significant delays in system enhancements or inadequate performance of new or upgraded systems once completed could damage our reputation and harm our business. Our operations also may suffer if we are unable to effectively manage the implementation of and adapt to new technology systems. We have entered into agreements with certain vendors to provide systems development and integration services that develop or license to us the IT platform for programs to optimize our business processes. If such vendors fail to perform as required or if there are substantial delays in developing, implementing and updating the IT platform, our customer delivery may be impaired, and we may have to make substantial further investments, internally or with third parties, to achieve our objectives. Additionally, our progress may be limited by parties with existing or claimed patents who seek to prevent us from using preferred technology or seek license payments from us. Any such shortcoming may require us to make substantial further investments in our IT platform, which could adversely affect our financial results.

Unauthorized disclosure of sensitive or confidential data, whether through system failure, intrusions or breaches or employee negligence, fraud or misappropriation, could damage our reputation and cause us to lose customers. Similarly, unauthorized access to or through our information systems or those we develop for our customers, whether by our employees or third parties, including a cyberattack by computer programmers and hackers who may develop and deploy viruses, worms or other malicious software programs, could result in negative publicity, significant remediation costs, legal liability and damage to our reputation and could have a material adverse effect on our results of operations. In addition, our liability insurance might not be sufficient in type or amount to adequately cover us against claims related to security breaches, cyberattacks and other related breaches.

If the security of confidential information used in connection with our services is breached or otherwise subject to unauthorized access, our reputation and business may be materially harmed.

Our services require us to collect, store, use, and transmit significant amounts of confidential information, including personally identifiable information, and other critical data. We employ a range of information technology solutions, controls, procedures, and processes designed to protect the confidentiality, integrity, and availability of our critical assets, including our data and information technology systems. While we engage in a number of measures aimed to protect against security breaches and to minimize problems if a data breach were to occur, our information technology systems and infrastructure may be vulnerable to damage, compromise, disruption, and shutdown due to attacks, intrusions or breaches by hackers or due to other circumstances, such as error or malfeasance by employees or third party service providers or technology malfunction. Like many other companies, we experience attempts to gain unauthorized access to our systems and information on a regular basis, and a number of our employees work remotely, which may create additional opportunities for cybercriminals to exploit vulnerabilities. The occurrence of any of these events, as well as a failure to promptly remedy these events should they occur, could compromise our systems, and the information stored in our systems could be accessed, publicly disclosed, lost, stolen, or damaged. Any such circumstance could adversely affect our ability to attract and maintain customers, cause us to suffer negative publicity, and subject us to legal claims and liabilities or regulatory penalties. In addition, unauthorized parties might alter information in our databases, which would adversely affect both the reliability of that information and our ability to market and perform our services. Techniques used to obtain unauthorized access or to sabotage systems change frequently, are constantly evolving and generally are difficult to recognize and react to effectively. We may be unable to anticipate these techniques or to implement adequate preventive or reactive measures. We have limited cyber-insurance coverage that may not cover all possible events, and this insurance is subject to deductibles and coverage limitations and exclusions. Several recent, highly publicized data security breaches at other companies have heightened consumer awareness of this issue and may embolden individuals or groups to target our systems or those of our strategic partners or enterprise customers.

International Risks

Our business is subject to international economic, political and other risks that could negatively affect our results of operations and financial condition.

We have significant operations in foreign countries, including, but not limited to, countries in Europe, Asia, South America, Africa and Australia that may require complex arrangements to deliver services on global contracts for our customers. As a result, we are subject to heightened risks inherent in conducting business internationally, including the following:

- conducting a single trial across multiple countries is complex, and issues in one country, such as a failure to comply with local regulations or restrictions, may affect the progress of the trial in the other countries, for example, by limiting the amount of data necessary for a trial to proceed, resulting in delays or potential cancellation of contracts, which in turn may result in loss of revenue;
- the United States or other countries could enact legislation or impose regulations or other restrictions, including unfavorable labor regulations or tax policies, which could have an adverse effect on our ability to conduct business in or expatriate profits from those countries;
- tax rates in certain foreign countries may exceed those in the United States and foreign earnings may be subject to withholding requirements or the imposition of tariffs, exchange controls or other restrictions, including restrictions on repatriation;
- certain foreign countries are expanding or may expand their regulatory framework with respect to patient informed consent, protection and compensation in clinical trials, and privacy, which could delay or inhibit our ability to conduct trials in such jurisdictions or which could materially increase the risks associated with performing trials in such jurisdictions;
- certain foreign countries are expanding or may expand their banking regulations that govern international currency transactions, particularly cross-border transfers, which may inhibit our ability to transfer funds into or within a jurisdiction, impeding our ability to pay our principal investigators, vendors and employees, thereby impacting our ability to conduct trials in such jurisdictions;
- the regulatory or judicial authorities of foreign countries may not enforce legal rights and recognize business procedures in a manner to which we are accustomed or would reasonably expect;
- we may have difficulty complying with a variety of laws and regulations in foreign countries, some of which may conflict with laws in the United States;
- potential violations of existing or newly adopted local laws or anti-bribery laws, such as the United States Foreign Corrupt Practices Act (FCPA) and the UK Bribery Act of 2010, may cause a material adverse effect on our business, financial condition, results of operations, cash flows or reputation;
- changes in political and economic conditions, including inflation, may lead to changes in the business environment in which we operate, as well as changes in foreign currency exchange rates;
- foreign governments may enact currency exchange controls that may limit the ability to fund our operations or significantly increase the cost of maintaining operations;
- customers in foreign jurisdictions may have longer payment cycles, and it may be more difficult to collect receivables in foreign jurisdictions; and
- natural disasters, pandemics or international conflict, including terrorist acts, could interrupt our services, endanger our personnel or cause project delays or loss of trial materials or results.
- Geopolitical issues in Europe, the Middle East and Asia may impact foreign countries in which we may need to enroll patients in our clinical trials, could cause such clinical trials to be delayed or suspended and could impact operations.

These risks and uncertainties could negatively impact our ability to, among other things, perform large, global projects for our customers. Furthermore, our ability to deal with these issues could be affected by applicable U.S. laws and the need to protect our assets. In addition, we may be more susceptible to these risks as we enter and continue to target growth in emerging countries and regions, including Asia, Eastern Europe and Latin America, which may be subject to a relatively higher risk of political instability, economic volatility, crime, corruption and social and ethnic unrest, all of which are exacerbated in many cases by a lack of an independent and experienced judiciary and uncertainties in how local law is applied and enforced. The materialization of any such risks could have an adverse impact on our financial condition, results of operations, cash flows and reputation.

Due to the global nature of our business, we may be exposed to liabilities under the Foreign Corrupt Practices Act and various other anti-corruption laws, and any allegation or determination that we violated these laws could have a material adverse effect on our business.

We are required to comply with the FCPA, UK Bribery Act of 2010 and other U.S. and foreign anti-corruption laws, which prohibit companies from engaging in bribery including corruptly or improperly offering, promising, or providing money or anything else of value to foreign officials and certain other recipients. In addition, the FCPA imposes certain books, records and accounting control obligations on public companies and other issuers. We operate in parts of the world in which corruption can be common and compliance with anti-bribery laws may conflict with local customs and practices. Our global operations face the risk of unauthorized payments or offers being made by employees, consultants, sales agents and other business partners outside of our control or without our authorization. It is our policy to implement safeguards (including mandatory training) to prohibit these practices by our employees and business partners with respect to our operations. However, irrespective of these safeguards, or as a result of monitoring compliance with such safeguards, it is possible that we or certain other parties may discover or receive information at some point that certain employees, consultants, sales agents, or other business partners may have engaged in corrupt conduct for which we might be held responsible. Violations of the FCPA or other foreign anti-corruption laws may result in restatements of, or irregularities in, our financial statements as well as severe criminal or civil sanctions, and we may be subject to other liabilities, which could negatively affect our business, operating results and financial condition. In some cases, companies that violate the FCPA may be debarred by the U.S. government and/or lose their U.S. export privileges. Changes in anti-corruption laws or enforcement priorities could also result in increased compliance requirements and related costs which could adversely affect our business, financial condition and results of operations. In addition, the U.S. or other governments may seek to hold us liable for FCPA violations or violations of other anti-corruption laws committed by companies in which we invest or that we acquired or will acquire.

Industry Risks

Outsourcing trends in the biopharmaceutical industry and changes in aggregate expenditures and R&D budgets could adversely affect our operating results and growth rate.

Our revenues depend on the level of R&D expenditures, size of the drug development pipelines and outsourcing trends of the biopharmaceutical industry, including the amount of such R&D expenditures that is outsourced and subject to competitive bidding among CROs. Accordingly, economic factors and industry trends that affect biopharmaceutical companies affect our business. For example, if biopharmaceutical companies become less able to access capital in the future, they may commit less capital to our services going forward. Also, biopharmaceutical companies continue to seek long-term strategic collaborations with global CROs with favorable pricing terms. Many of our competitors seek out these collaborations, while we generally do not. If our competitors can successfully enter into these collaborations, it may reduce the share of the biopharmaceutical outsourcing business that we might otherwise be positioned to capture.

In addition, if the biopharmaceutical industry reduces its outsourcing of clinical trials or such outsourcing fails to grow at projected or expected rates, or at all, our business, financial condition, results of operations and cash flows could be materially and adversely affected. We may also be negatively impacted by consolidation and other factors in the biopharmaceutical industry, which may slow decision making by our customers, result in the delay or cancellation of existing projects, cause reductions in overall R&D expenditures or lead to increased pricing pressures. Further, in the event that one of our customers combines with a company that is using the services of one of our competitors, the combined company could decide to use the services of that competitor or another provider. All of these events could adversely affect our business, financial condition, cash flows or results of operations.

We may be affected by healthcare reform and potential additional regulatory reforms, which may adversely impact the biopharmaceutical industry or otherwise reduce the need for our services or negatively impact our profitability.

Numerous government bodies are considering or have adopted various healthcare reforms and may undertake, or are in the process of undertaking, efforts to control growing healthcare costs through legislation, regulation and voluntary agreements with healthcare providers and biopharmaceutical companies, including many of our customers. By way of example, in March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively, the Affordable Care Act, was signed into law, which, among other things, expanded, over time, health insurance coverage, imposed health industry cost containment measures, enhanced remedies against healthcare fraud and abuse, added new transparency requirements for healthcare and health insurance industries, imposed new taxes and fees on pharmaceutical and medical device manufacturers, added new requirements for certain applicable drug and device manufacturers to disclose payments to physicians, including principal investigators, and imposed additional health policy

reforms, any of which may significantly impact the biopharmaceutical industry. We are uncertain as to the full effects of these reforms on our business and are unable to predict what legislative proposals, if any, will be adopted in the future. If regulatory cost containment efforts limit the profitability of new drugs, our customers may reduce their R&D expenditures, which could reduce the business they outsource to us. Similarly, if regulatory requirements for product testing are relaxed or harmonized across jurisdictions, or simplified drug approval procedures are adopted, the demand for our services could decrease.

Government bodies may also adopt healthcare legislation or regulations that are more burdensome than existing regulations. For example, product safety concerns and recommendations by the Drug Safety Oversight Board could change the regulatory environment for drug products, and new or heightened regulatory requirements may increase our expenses or limit our ability to offer some of our services. Additionally, new or heightened regulatory requirements may have a negative impact on the ability of our customers to conduct industry sponsored clinical trials, which could reduce the need for our services. These developments and the lack of clarity regarding future healthcare policies and regulations have created significant uncertainty that could adversely affect our business, financial condition, cash flows or results of operations.

Consolidation in the biopharmaceutical industry could lead to a reduction in our revenues.

The biopharmaceutical and CRO industries are currently undergoing a period of increased merger activity. Several large biopharmaceutical companies have recently completed mergers and acquisitions that will consolidate the outsourcing trends and R&D expenditures into fewer companies, and many larger and medium sized biopharmaceutical companies have been acquiring smaller biopharmaceutical companies. As a result of this and future consolidations, our customer diversity may decrease and our business may be adversely affected.

The biopharmaceutical industry has a history of patent and other intellectual property litigation, and we might be involved in costly intellectual property lawsuits.

The biopharmaceutical industry has a history of intellectual property litigation, and these lawsuits will likely continue in the future. Accordingly, even without wrongdoing on our part, we may face patent infringement suits by companies that have patents for similar business processes or other suits alleging infringement of their intellectual property rights. Legal proceedings relating to intellectual property could be expensive, take significant time and divert management's attention from other business concerns, regardless of the outcome of the litigation. If we do not prevail in an infringement lawsuit brought against us, we might have to pay substantial damages, and we could be required to stop the infringing activity or obtain a license to use technology on unfavorable terms. Further, our customers could be similarly exposed to intellectual property suits and the resulting economic and operational strain defending such claims could negatively impact such customers' ability to fund or continue ongoing clinical trials on which we are working.

If we do not keep pace with rapid technological changes, our services may become less competitive or obsolete.

The biopharmaceutical industry generally, and drug development and clinical research more specifically, are subject to rapid technological changes. Our current competitors or other businesses might develop technologies or services that are more effective or commercially attractive than, or render obsolete, our current or future technologies and services. If our competitors introduce superior technologies or services and if we cannot make enhancements to remain competitive, our competitive position would be harmed. If we are unable to compete successfully, we may lose customers or be unable to attract new customers, which could lead to a decrease in our revenue and have a material adverse effect on our financial condition.

Circumstances beyond our control could cause the CRO industry to suffer reputational or other harm that could result in an industry-wide reduction in demand for CRO services, which could harm our business.

Demand for our services may be affected by perceptions of our customers regarding the CRO industry as a whole. For example, other CROs could engage in conduct that could render our customers less willing to do business with us or any CRO. Likewise, a widely reported injury to clinical trial participants could result in negative perceptions of clinical trial activity, thereby adversely impacting our industry. One or more CROs could engage in or fail to detect malfeasance, such as inadequately monitoring sites, producing inaccurate databases or analysis, falsifying patient records, and performing incomplete lab work, or take other actions that would reduce the confidence of our customers in the CRO industry. As a result, the willingness of biopharmaceutical companies to outsource R&D services to CROs could diminish and our business could thus be harmed materially by events outside our control.

Other Legal, Regulatory, Insurance and Tax Risks

If we fail to perform our services in accordance with contractual requirements, government regulations and ethical considerations, we could be subject to significant costs or liability and our reputation could be adversely affected.

We contract with biopharmaceutical companies to perform a wide range of services to assist them in bringing new drugs to market. Our services include monitoring clinical trials, data and laboratory analysis, electronic data capture, patient recruitment and other related services. Such services are complex and subject to contractual requirements, government regulations, and ethical considerations. For example, we are subject to regulation by the FDA, and comparable foreign regulatory authorities relating to our activities in conducting pre-clinical studies and clinical trials. Before clinical trials begin in the United States, a drug is tested in pre-clinical trials that must comply with Good Laboratory Practice and other requirements. An applicant must file an IND, which must become effective before human clinical testing may begin. Further, an independent IRB, for each medical center proposing to participate in the clinical trial must review and approve the protocol for the clinical trial. Once initiated, clinical trials must be conducted pursuant to and in accordance with the applicable IND conditions, the requirements of the relevant IRBs, the Federal Food, Drug, and Cosmetic Act and its implementing regulations, including GCP, and other requirements. We are also subject to regulation by the Drug Enforcement Administration, or DEA, which regulates the distribution, recordkeeping, handling, security, and disposal of controlled substances. If we fail to perform our services in accordance with these requirements, regulatory authorities may take action against us or our customers. Such actions may include injunctions or failure of such regulatory authority to grant marketing approval of our customers' products, imposition of clinical holds or delays, suspension or withdrawal of approvals, rejection of data collected in our clinical trials, license revocation, product seizures or recalls, operational restrictions, civil or criminal penalties or prosecutions, damages or fines. Customers may also bring claims against us for breach of our contractual obligations, and patients in the clinical trials and patients taking drugs approved on the basis of those trials may bring personal injury claims against us. Any such action could have a material adverse effect on our business, financial condition, results of operations, cash flows or reputation.

Such consequences could arise if, among other things, the following occur:

Improper performance of our services. The performance of clinical development services is complex and time-consuming. For example, we may make mistakes in conducting a clinical trial that could negatively impact or obviate the usefulness of results of the trial or cause the results of the trial to be reported improperly. If the trial results are compromised, we could be subject to significant costs or liability, which could have an adverse impact on our ability to perform our services and our reputation would be harmed. As examples:

- non-compliance generally could result in the termination of ongoing clinical trials or the disqualification of data for submission to regulatory authorities;
- non-compliance could compromise data from a particular trial, such as failure to verify that adequate informed consent was obtained from patients, which could require us to repeat the trial under the terms of our contract at no further cost to our customer, but at a potentially substantial cost to us; and
- breach of a contractual term could result in liability for damages or termination of the contract.

The services we provide in connection with large clinical trials can cost up to tens of millions of dollars, and while we endeavor to contractually limit our exposure to such risks, improper performance of our services could have a material adverse effect on our financial condition, damage our reputation and result in the cancellation of current contracts by the affected customer or other current customers or failure to obtain future contracts from the affected customer or other current or potential customers.

Investigation of customers. From time to time, one or more of our customers are investigated by regulatory authorities or enforcement agencies with respect to regulatory compliance of their clinical trials, programs or the marketing and sale of their drugs. In these situations, we have often provided services to our customers with respect to the clinical trials, programs or activities being investigated, and we are called upon to respond to requests for information by the authorities and agencies. There is a risk that either our customers or regulatory authorities could claim that we performed our services improperly or that we are responsible for clinical trial or program compliance. If our customers or regulatory authorities make such claims against us, we could be subject to significant costs in defending our activities and potential damages, fines or penalties. In addition, negative publicity regarding regulatory compliance of our customers' clinical trials, programs or products could have an adverse effect on our business and reputation.

Insufficient customer funding to complete a clinical trial. As noted above, clinical trials can cost up to tens of millions of dollars. There is a risk that we may initiate a clinical trial for a customer, and then the customer becomes unwilling or unable to fund the completion of the trial. In such a situation, notwithstanding the customer's ability or willingness to pay

for or otherwise facilitate the completion of the trial, we may be ethically bound to complete or wind down the trial at our own expense.

Interactive voice/web response service malfunction. We develop and maintain our own, and also use third-parties to run, interactive voice/web response systems. These systems automatically manage the randomization of patients in a given clinical trial to different treatment arms and regulate the supply of investigational drugs. An error in the design, programming or validation of these systems could lead to inappropriate assignment or dosing of patients which could give rise to patient safety issues, invalidation of the trial or liability claims against us. Furthermore, negative publicity associated with such a malfunction could have an adverse effect on our business and reputation. Additionally, errors in randomization may require us to repeat the trial at no further cost to our customer, but at a substantial cost to us.

In addition to the above U.S. laws and regulations, we must comply with the laws of all countries where we do business, including laws governing clinical trials in the jurisdiction where the trials are performed. Failure to comply with applicable requirements could subject us to regulatory risk, liability and potential costs associated with redoing the trials, which could damage our reputation and adversely affect our operating results.

Some of our services involve direct interaction with clinical trial patients and operation of a Phase I clinical facility, which could create potential liability that may adversely affect our results of operations and financial condition.

We operate a facility where Phase I clinical trials are conducted, which ordinarily involve testing an investigational drug, biologic or medical device on a limited number of individuals to evaluate its safety, determine a safe dosage range and identify side effects. Failure to operate such a facility and clinical trials in accordance with FDA, DEA and other applicable regulations could result in disruptions to our operations. Additionally, we face risks associated with adverse events resulting from the administration of such drugs, biologics and medical devices and the professional malpractice of medical care providers. We also directly employ nurses and other trained employees who assist in implementing the testing involved in our clinical trials, such as drawing blood from subjects. Any professional malpractice or negligence by such investigators, nurses or other employees could potentially result in liability to us in the event of personal injury to or death of a subject in clinical trials. This liability, particularly if it were to exceed the limits of any indemnification agreements and insurance coverage we may have, may adversely affect our financial condition, results of operations and reputation.

Our clinical development services could subject us to potential liability that may adversely affect our results of operations and financial condition.

Our business involves the testing of new drugs, biologics and medical devices on patients in clinical trials. Our involvement in the clinical trial and development process creates a risk of liability for personal injury to or death of patients, particularly for those with life-threatening illnesses, resulting from adverse reactions to the products administered during testing or after regulatory approval. For example, we may be sued in the future by individuals alleging personal injury due to their participation in clinical trials and seeking damages from us under a variety of legal theories. If we are required to pay damages or incur defense costs in connection with any personal injury claim that is outside the scope of indemnification agreements we have with our customers, if any indemnification agreement is not performed in accordance with its terms or if our liability exceeds the amount of any applicable indemnification limits or available insurance coverage, our business, financial condition, results of operations, cash flows or reputation could be materially and adversely affected. We might also not be able to obtain adequate insurance or indemnification for these types of risks at reasonable rates in the future.

We also contract with institutions and physicians to serve as investigators in conducting clinical trials if the investigators or study staff commit errors or make omissions during a clinical trial that result in harm to trial patients, or patients suffer harm with a delayed onset after a clinical trial is completed and the product has obtained regulatory approval, claims for personal injury or products liability damages may result. Additionally, if the investigators engage in fraudulent or negligent behavior, trial data may be compromised, which may require us to repeat the clinical trial or subject us to liability or regulatory action. We do not believe we are legally responsible for the medical care rendered by such third party investigators, and we would vigorously defend any claims brought against us. However, it is possible we could be found liable for claims with respect to the actions of third party investigators and the institutions at which clinical trials may be conducted.

Our operations involve the use and disposal of hazardous substances and waste which can give rise to liability that could adversely impact our financial condition.

We conduct activities that have involved, and may continue to involve, the controlled use of hazardous materials and the creation of hazardous substances, including medical waste and other highly regulated substances. As a result, our operations pose the risk of accidental contamination or injury caused by the release of these materials and/or the creation of hazardous substances, including medical waste and other highly regulated substances. In the event of such an accident, we could be held liable for damages and cleanup costs which, to the extent not covered by existing insurance or indemnification, could harm our business. In addition, other adverse effects could result from such liability, including reputational damage resulting in the loss of additional business from certain customers.

We act as legal representative and/or data representative for some clients.

We act as the legal representative and/or the data representative for certain clients in certain jurisdictions. As we believe that acting as legal representative and/or data representative of clients exposes us to a higher risk of liability, this service is provided subject to our policy and requires certain preconditions to be met. The preconditions relate to obtaining specific insurance commitments and indemnities from the client to cover the nature of the exposure. However, there is no guarantee that the specific insurance will be available and provide cover or that a client will fulfil its obligations in relation to their indemnity.

Our insurance may not cover all of our indemnification obligations and other liabilities associated with our operations.

We maintain insurance designed to provide coverage for ordinary risks associated with our operations and our ordinary indemnification obligations, which we believe to be customary for our industry. The coverage provided by such insurance may not be adequate for all claims we may make or may be contested by our insurance carriers. If our insurance is not adequate or available to pay liabilities associated with our operations, or if we are unable to purchase adequate insurance at reasonable rates in the future, our business, financial condition, results of operations or cash flows may be materially adversely impacted.

Our effective income tax rate may fluctuate, which may adversely affect our operations, earnings and earnings per share.

Our effective income tax rate is influenced by our projected profitability in the various taxing jurisdictions in which we operate. The global nature of our business increases our tax risks. In addition, for various reasons, revenue authorities in many of the jurisdictions in which we operate are known to have become more active in their tax collection activities. Changes in the distribution of profits and losses among taxing jurisdictions may have a significant impact on our effective income tax rate, which in turn could have an adverse effect on our net income and earnings per share. The application of tax laws in various taxing jurisdictions, including the United States, is subject to interpretation, and tax authorities in various jurisdictions may have diverging and sometimes conflicting interpretations of the application of tax laws. Changes in tax laws or tax rulings, in the United States or other tax jurisdictions in which we operate, could materially impact our effective tax rate.

Factors that may affect our effective income tax rate include, but are not limited to:

- the requirement to exclude from our quarterly worldwide effective income tax calculations losses in jurisdictions where no income tax benefit can be recognized;
- actual and projected full year pre-tax income, including differences between actual and anticipated income before taxes in various jurisdictions;
- changes in tax laws, or in the interpretation or application of tax laws, in various taxing jurisdictions;
- audits or other challenges by taxing authorities;
- changes to intercompany transfer pricing policies or changes in laws within foreign tax jurisdictions
- the establishment of valuation allowances against a portion or all of certain deferred income tax assets if we determined that it is more likely than not that future income tax benefits will not be realized; and
- changes in the relative mix and size of clinical trials and staffing levels in various tax jurisdictions.

These changes may cause fluctuations in our effective income tax rate that could adversely affect our results of operations and cause fluctuations in our earnings and earnings per share.

If we fail to comply with federal, state and foreign healthcare laws, including fraud and abuse laws, we could face substantial penalties and our business, results of operations, financial condition and prospects could be adversely affected.

Even though we do not order healthcare services or bill directly to Medicare, Medicaid or other third party payors, certain federal and state healthcare laws and regulations pertaining to fraud and abuse are applicable to our business. We could be subject to healthcare fraud and abuse laws of both the federal government and the states in which we conduct our business. Because of the breadth of these laws and the narrowness of available statutory and regulatory exceptions, it is possible that some of our business activities could be subject to challenge under one or more of such laws. If we or our operations are found to be in violation of any of the laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including civil and criminal penalties, damages, fines, imprisonment and the curtailment or restructuring of our operations, any of which could materially adversely affect our ability to operate our business and our financial results.

Laws and regulations regarding the protection of personal data could result in increased risks of liability or increased cost to us or could limit our service offerings.

The confidentiality, collection, use and disclosure of personal data, including clinical trial patient-specific information, are subject to governmental regulation generally in the country in which the personal data was collected or used. For example, U.S. federal regulations under the Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 and their implementing regulations, including the Privacy and Security Rules, or collectively, HIPAA, generally require individuals' written authorization, in addition to any required informed consent, before protected health information may be used for research and such regulations specify standards for de-identifications and for limited data sets. We may also be subject to applicable state privacy and security laws and regulations in states in which we operate. Two of our subsidiaries, Medpace Clinical Pharmacology, LLC and C-MARC, LLC, are covered entities under HIPAA. Further, because of amendments to the HIPAA Privacy and Security Rules that were promulgated on January 25, 2013, known as the Omnibus Final Rule, service providers to covered entities under HIPAA, known as business associates, are now directly subject to HIPAA. There are some instances where we may be a HIPAA "business associate" of a "covered entity," meaning that we may be directly liable for any breaches of protected health information and other HIPAA violations. We are also liable contractually under any business associate agreements we have signed with covered entities. If we are determined to be a business associate, we would be subject to HIPAA's enforcement scheme, which, as amended, can result in up to $1.5 million in annual civil penalties for each HIPAA violation. A single breach incident can result in multiple violations of the HIPAA standards, meaning that penalties could be in excess of $1.5 million. In addition, the Federal Civil Penalties Inflation Adjustment Improvement Act of 2015 required all federal agencies to adjust their civil monetary penalties to inflation, no later than August 1, 2016. As a result, the minimum annual penalties for each HIPPA violation which occurs later than February 17, 2009 is now $1.7 million.

HIPAA also authorizes state attorneys general to file suit on behalf of their residents for violations. Courts are able to award damages, costs and attorneys' fees related to violations of HIPAA in such cases. While HIPAA does not create a private right of action allowing individuals to file suit against us in civil court for violations of HIPAA, its standards have been used as the basis for duty of care cases in state civil suits such as those for negligence or recklessness in the misuse or breach of protected health information. In addition, HIPAA mandates that the Secretary of the U.S. Department of Health and Human Services conduct periodic compliance audits of HIPAA covered entities and their business associates for compliance with the HIPAA privacy and security standards, and Phase two of these audits, focusing on business associates has begun.

In the EU, personal data includes any information that relates to an identified or identifiable natural person with health information carrying additional obligations, which may include obtaining the explicit consent from the individual for collection, use or disclosure of the information. In addition, we are subject to EU rules with respect to export of such data out of the EU. Such data export rules are constantly changing. The United States, the EU and its member states, and other countries where we have operations, such as China and Singapore, continue to issue new privacy and data protection rules and regulations that relate to personal data and health information. Failure to comply with certain certification/registration and annual re-certification/registration provisions associated with these data protection and privacy regulations and rules in various jurisdictions, or to resolve any serious privacy or security complaints, could subject us to regulatory sanctions, criminal prosecution or civil liability. Federal, state and foreign governments may propose or have adopted additional legislation governing the collection, possession, use or dissemination of personal data, such as personal health information, and personal financial data as well as security breach notification rules for loss or theft of or unauthorized access to such data. Additional legislation or regulation of this type might, among other things, require us to implement new security measures and processes or bring within the legislation or regulation de-identified health or other personal data, each of

which may require substantial expenditures or limit our ability to offer some of our services. Additionally, if we violate applicable laws, regulations or duties relating to the use, privacy or security of personal data, we could be subject to civil liability or criminal prosecution, be forced to alter our business practices and suffer reputational harm. We also are subject to the requirements of the EU's General Data Protection Regulation, or GDPR, because we are processing data in the EU and data of EU residents outside of the EU. The GDPR shortens the deadline for data breach notifications, imposes additional obligations when we process personal data on behalf of our customers, including in relation to security measures, and increases administrative burdens on companies processing personal data, including employee and business partner data. If we do not comply with our obligations under the GDPR we could be exposed to significant fines of up to 20 million EUR or up to 4% of the total worldwide annual turnover of the preceding financial year, whichever is higher.

Our business could be harmed from the loss or suspension of a license or imposition of a fine or penalties under, or future changes in, or interpretations of, the law or regulations of the Clinical Laboratory Improvement Act of 1967, and the Clinical Laboratory Improvement Amendments of 1988 (CLIA), or those of other national, state or local agencies in the U.S. and other countries where we operate laboratories.

The commercial laboratory testing industry is subject to extensive U.S. regulation, and many of these statutes and regulations have not been interpreted by the courts. CLIA extends federal oversight to virtually all clinical laboratories operating in the U.S. by requiring that they be certified by the federal government or by a federally approved accreditation agency. The sanction for failure to comply with CLIA requirements may be suspension, revocation or limitation of a laboratory's CLIA certificate, which is necessary to conduct business, as well as significant fines and/or criminal penalties. In addition, we are subject to regulation under state law. State laws may require that laboratories and/or laboratory personnel meet certain qualifications, specify certain quality controls or require maintenance of certain records. We also operate laboratories outside of the U.S. and are subject to laws governing our laboratory operations in the other countries where we operate.

Applicable statutes and regulations could be interpreted or applied by a prosecutorial, regulatory or judicial authority in a manner that would adversely affect our business. Potential sanctions for violation of these statutes and regulations include significant fines and the suspension or loss of various licenses, certificates and authorizations, which could have a material adverse effect on our business. In addition, compliance with future legislation could impose additional requirements on us, which may be costly.

Environmental, Social and Governance initiatives could increase our costs, and inaction could harm our reputation and adversely impact our financial results.

There has been increasing public focus by investors, customers, environmental activists, the media, and governmental and nongovernmental organizations on a variety of environmental, social, governance and other sustainability matters. In light of the importance of this to internal and external stakeholders, if we are not effective in addressing environmental, social, governance and other sustainability matters affecting our business our reputation and financial results may suffer. We may experience increased costs in order to execute upon our sustainability goals and measure achievement of those goals, which could have an adverse impact on our business and financial condition.

In addition, this emphasis on environmental, social, governance and other sustainability matters has resulted and may result in the adoption of new laws and regulations, including new reporting requirements. For example, the SEC has published proposed rules that would require companies to provide significantly expanded climate-related disclosures in their periodic reporting and has announced plans for additional rulemakings on environmental and social topics, such as human capital management. Such rules may require us to incur significant additional costs to comply, including the implementation of significant additional internal controls processes and procedures regarding matters that have not been subject to such controls in the past, and impose increased oversight obligations on our management and Board. If we fail to comply with new laws, regulations, or reporting requirements, our reputation and business could be adversely impacted. In addition, compliance with new laws, regulations, and reporting requirements may increase our costs and result in disclosures of potentially sensitive information.

Changes in climate patterns or unusual weather at some of our locations can lead to increased energy usage and costs, or otherwise adversely impact our facilities and operations and disrupt our ability to conduct clinical trials in the normal course.

Structural and Organizational Risks

Our Chief Executive Officer and founder controls a substantial amount of our outstanding common stock and his interests may be different from or conflict with those of our other shareholders.

As of December 31, 2023, August J. Troendle, our Chief Executive Officer and founder, through his direct ownership of 806,643 shares of our common stock and his beneficial ownership of 5,589,947 shares of our common stock held by Medpace Investors LLC ("Medpace Investors"), controls approximately 20.8% of the outstanding shares of our common stock. Upon a distribution of our common stock held by Medpace Investors, our Chief Executive Officer would receive approximately 85.6% of such distributed shares. Accordingly, August J. Troendle is able to exert a significant degree of influence or actual control over our management and affairs and corporate actions requiring shareholder approval, irrespective of how our other shareholders may vote, including:

- the election and removal of directors and the size of our board of directors, or the Board;
- any amendment of our articles of incorporation or bylaws; or
- the approval of mergers and other significant corporate transactions, including a sale of substantially all of our assets.

Moreover, August J. Troendle's share ownership may also adversely affect the trading price for our common stock to the extent investors perceive disadvantages in owning shares of a company with a significant shareholder.

We are party to transactions with related persons that may increase the risk of allegations of conflicts of interest, and such allegations may impair our ability to realize the benefits we expect from these transactions.

Due to the relationships among us and certain related persons, the agreements or other transactions we have entered into with them are considered related person transactions. Our agreements or transactions with related persons may not be on terms as favorable to us as they would have been if they had been negotiated among unrelated persons. For additional information on related person transactions involving us, see the "Certain Relationships" section in our Proxy Statement for our 2024 Annual Meeting of Stockholders. While our Related Person Transaction Policy and Procedures requires our Audit Committee's consideration of all relevant facts and circumstances, including a determination of whether the transaction has terms comparable to those that could be obtained in an arm's length transaction, the potential for a conflict of interest exists and such related persons may have conflicts of interest, or the appearance of conflicts of interest, with respect to matters involving or affecting us and the related person. Moreover, we are subject to the risk that our stockholders may challenge any such related person transactions and the agreements entered into as part of them. If such a challenge were to be successful, we might not realize the benefits expected from the transactions being challenged. Moreover, any such challenge could result in substantial costs and a diversion of our management's attention, could have a material adverse effect on our reputation, business and growth and could adversely affect our ability to realize the benefits expected from the transactions, whether or not the allegations have merit or are substantiated.

General Risks

If we lose the services of key personnel or are unable to recruit experienced personnel, our business could be adversely affected.

Our success substantially depends on the collective performance, contributions and expertise of our senior management team, including August J. Troendle, our Chief Executive Officer and founder, and other key personnel including qualified management, professional, scientific and technical operating staff. There is significant competition for qualified personnel in the biopharmaceutical services industry, particularly for those with higher educational degrees, such as a medical or nursing degree, a Ph.D., or an equivalent degree, and our industry generally tends to experience relatively high levels of employee turnover. If any of our key employees were to join a competitor or to form a competing company, some of our customers might choose to use the services of that competitor or new company instead of our own. Furthermore, customers or other companies seeking to develop in-house capabilities may hire some of our senior management or other key employees. The departure of any key contributor, the payment of increased compensation to attract and retain qualified personnel or our inability to continue to identify, attract and retain qualified personnel or replace any departed personnel in a timely fashion may impact our ability to grow our business and compete effectively in our industry and may negatively affect our business, financial condition, results of operations, cash flows or reputation.

Our operations might be affected by the occurrence of a natural disaster or other catastrophic event.

We depend on our customers, investigators, laboratories and other facilities for the continued operation of our business. Although we have contingency plans in place for natural disasters or other catastrophic events, these events, including terrorist attacks, pandemic flu, hurricanes, floods and ice and snow storms, could nevertheless disrupt our operations and IT systems or those of our customers, investigators and collaboration partners, which could also affect us. Even though we carry business interruption insurance policies and typically have provisions in our contracts that protect us in certain events, we might suffer losses as a result of business interruptions that exceed the coverage available under our insurance policies or for which we do not have coverage. Any natural disaster or catastrophic event affecting us or our customers, investigators or collaboration partners could have a significant negative impact on our operations and financial performance.

Item 1B. Unresolved Staff Comments.

None.

Item 1C. Cybersecurity

The Company has adopted standard operating procedures and processes designed to monitor, detect, evaluate and respond to cybersecurity incidents that impact and jeopardize sensitive data stored on the Company's internal systems or on third party systems utilized by the Company. Because the importance and sensitivity of information utilized by the Company varies, the Company applies different levels of protection according to a defined data classification matrix. The Company has implemented a data classification policy to ensure that all data utilized, or housed by or on behalf of the Company, is identified, classified, labeled, properly handled and protected in accordance with its risk profile and as may be required by applicable law. A Data Classification Steering Committee comprised of the Chief Executive Officer (CEO), the President and General Counsel oversees and approves this classification policy. The Company's Information Security team, a group with expertise in cybersecurity that is within the Information Technology function, operating under direction of the Company's Chief Information Officer (CIO), is responsible for monitoring data classification ratings and implementing control solutions to protect data in accordance with the classification assigned. The Company's Information Security team has appropriate experience in information technology roles. The Information Security team also evaluates third party service providers that store sensitive Company data to ensure reputability and the Company reviews service auditor reports annually as may be available. The Company engages third-party services to conduct evaluations of security controls, whether through penetration testing, automated vulnerability scanning, independent audits or consulting on best practices to address new challenges. These evaluations include testing both the design and operational effectiveness of security controls. The Company regularly tests defenses by performing simulations and drills at both a technical level (including through penetration tests) and by reviewing operational policies and procedures with third-party experts. The Company also shares and receives threat intelligence with its defense industrial base peers, government agencies, information sharing and analysis centers and cybersecurity associations. Third parties are expected to communicate cybersecurity incidents to the Company within a timely manner.

We have adopted several measures aimed to protect against cybersecurity breaches and to minimize disruption if a data breach were to occur. Such measures include documenting, among other things: (i) incident response plans; (ii) procedures for identifying and reporting an incident; and (iii) procedures for containing and eradicating known threats and restoring service to the impacted systems. Upon identification of a cybersecurity event, our policies guide how to handle the incident based on the incident severity and includes information about the required response times, communication protocols and preparation and dissemination of reporting to management. The severity of an incident is classified as "high", "medium" or "low" based on the sensitivity and type of data compromised, the criticality of the system to the Company's operations and its ability to function for users, and the anticipated recovery time and remediation resources required. Incidents classified as "high" must be communicated immediately along with regular progress updates to the CEO, the President, Chief Financial Officer (CFO), General Counsel, CIO and various members of the Information Technology team. High severity events require a sustained response effort using all available resources, which may include engaging third parties to assist in the resolution process as necessary, until resolved.

Once the Company gathers sufficient information about a high severity incident, it is evaluated for materiality, both individually and in the aggregate with any other incidents, by a management sub-committee comprised of the President, CFO, CIO and General Counsel. This sub-committee may engage or consult with third parties. Criteria used to evaluate materiality include both quantitative and qualitative factors, including, but not limited to, financial loss, risk to reputation and competitiveness, harm to customer or vendor relationships and the potential for litigation or regulatory investigations. Incidents determined to be material are then communicated immediately to the CEO and then to the Board of Directors after such determination and disclosed in an 8-K within 4 business days upon such determination.

As a part of the Company's overall integrated approach to risk management, the Company assesses, identifies and manages cybersecurity related risks. The full Board of Directors provides an additional level of cybersecurity risk oversight.

Medpace assesses and evaluates cybersecurity risk using the framework established by the National Institute of Standards and Technology (NIST). Bi-annually, at meetings of the Board of Directors, utilizing the NIST framework standards as a guide, the Information Technology Team discusses the Company's cybersecurity mitigation and resolution maturity and readiness. The Information Technology team's reports to the Board also include reviews and evaluations of key cybersecurity risk focus areas and initiatives, as well as quantitative incident occurrence information.

See Item 1A. "Risk Factors" of Part I of this Annual Report on Form 10-K for discussion of cybersecurity risks that are reasonably likely to materially affect the Company.

Item 2. Properties.

As of December 31, 2023, we had leased commercial locations in various countries across North America, Europe, Asia, South America, Africa and Australia. We also own lab space in Leuven, Belgium. Most of these facilities consist solely of office space; however, we have five laboratories located across four facilities and a logistics warehouse. Our principal executive offices are located on a corporate campus in Cincinnati, Ohio consisting of five buildings totaling approximately 650,000 square feet. The leases for four buildings in our Cincinnati site expire in 2027, 2027, 2032 and 2040. We own the fifth building. None of our leases are individually material to our business model and all have either options to renew or are located in major markets with what we believe are adequate opportunities to continue business operations on terms satisfactory to us.

Item 3. Legal Proceedings.

We are party to legal proceedings incidental to our business and may become subject to additional legal proceedings in the future. While the outcome of these matters could differ from management's expectations, we do not believe that the resolution of these matters, individually and in the aggregate, is reasonably likely to have a material adverse effect to our consolidated financial statements. Litigation is subject to inherent uncertainties. See Note 12 "Commitments, Contingencies and Guarantees—Legal Proceedings" to our consolidated financial statements included in Item 8 of Part II in this Annual Report on Form 10-K.

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 "MEDP".

Holders of Record

On February 9, 2024, there were approximately 10 shareholders of record of our common stock. Because many of the shares of our common stock are registered in "nominee" or "street" names, we believe that the total number of beneficial owners is considerably higher.

Dividend Policy

We have not paid any dividends to date, nor do we have current plans to pay any cash dividends on our common stock for the foreseeable future and instead intend to retain earnings, if any, for future operations, expansion and debt repayment. However, in the future, subject to the factors described below and our future liquidity and capitalization, we may change this policy and choose to pay dividends.

We are a holding company which does not conduct any business operations of our own. As a result, our ability to pay cash dividends on our common stock is dependent upon cash dividends and distributions and other transfers from our subsidiaries.

In addition, under Delaware law, our Board may declare dividends only to the extent of our surplus (which is defined as total assets at fair market value minus total liabilities, minus statutory capital) or, if there is no surplus, out of our net profits for the then current and/or immediately preceding fiscal year.

Any future determination to declare dividends will be at the discretion of our Board and will take into account:

- general economic business conditions;
- our net income, financial condition and results of operations;
- our capital requirements;
- our prospects;
- the ability of our operating subsidiaries to pay dividends and make distributions to us;
- legal restrictions; and
- such other factors as our Board may deem relevant.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

Share Repurchases

In 2018, the Board of Directors approved a stock repurchase program which has been amended several times to increase the aggregate amount of the stock repurchase authorization. For the year ended December 31, 2022, the Company repurchased 5,463,244 shares for $800.5 million under this repurchase program. For the year ended December 31, 2021, the Company repurchased 377,783 shares for $62.1 million. As of June 30, 2022, the Company completed all authorized share repurchases under this repurchase program.

In the fourth quarter of 2022, the Board approved a new stock repurchase program of up to $500.0 million. For the year ended December 31, 2023, the Company repurchased 781,068 shares for $144.0 million under the new repurchase program. For the year ended December 31, 2022, the Company repurchased 228,247 shares for $47.2 million under the new repurchase program. As of December 31, 2023, we have remaining authorization of $308.8 million under the new repurchase program.

There were no share repurchases in the fourth quarter of 2023.

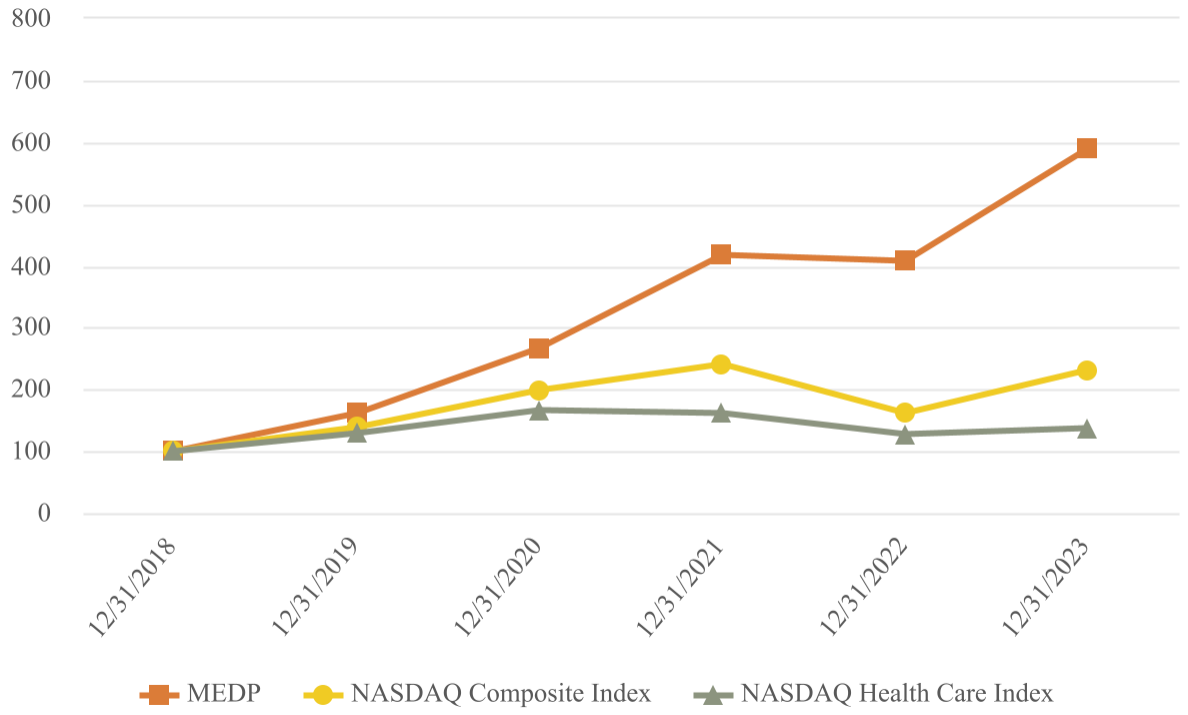
Repurchases under the share repurchase programs are executed in the open market or negotiated transactions under trading plans established pursuant to Rule 10b5-1. The Company constructively retires the repurchased shares associated with these approved share repurchase programs, except for a small portion which were retained as Treasury Shares on the

consolidated statements of shareholders' equity. Retired share repurchase amounts paid in excess of par value are reflected within Accumulated deficit/Retained earnings in the Company's consolidated balance sheets. The repurchase programs may be suspended or discontinued at any time without notice.

Stock Performance Graph

The information included under the heading "Stock Performance Graph" is "furnished" and not "filed" for purposes of Section 18 of the Exchange Act, or otherwise subject to the liabilities of that section, nor shall it be deemed to be "soliciting material" subject to Regulation 14A or incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act of 1934, as amended.

Our common stock is listed for trading on the NASDAQ under the symbol "MEDP." The Stock Price Performance Graph set forth below compares the cumulative total shareholder return on our common stock for the period from December 31, 2018 through December 31, 2023, with the cumulative total return of the Nasdaq Composite Index and the Nasdaq Health Care Index over the same period. The comparison assumes $100 was invested on December 31, 2018 in the common stock of Medpace Holdings, Inc., in the Nasdaq Composite Index, and in the Nasdaq Health Care Index and assumes reinvestment of dividends, if any. The stock price performance of the following graph is not necessarily indicative of future stock price performance. Information used in the graph was obtained from the Nasdaq Stock Market, a source believed to be reliable, but we are not responsible for any errors or omissions in such information.



Equity Compensation Plan Information

The information required by Part II, Item 5 of the Annual Report on Form 10-K regarding equity compensation plans is incorporated herein by reference to "Part III, Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters."

Item 6. Reserved

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

You should read the following discussion and analysis of our financial condition and results of operations in conjunction with our consolidated financial statements and the notes thereto included elsewhere in this Annual Report on Form 10-K to provide an understanding of our results of operations, financial condition and cash flows. This section of this Form 10-K

generally discusses 2023 and 2022 items and year-to-year comparisons between 2023 and 2022. For a comparison of our results of operations for the fiscal years ended December 31, 2022 and December 31, 2021, see "Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" of our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, filed with the SEC on February 14, 2023. This item and the related discussion contain forward-looking statements reflecting current expectations that involve risks and uncertainties. Actual results and the timing of events may differ materially from those indicated in such forward-looking statements. Important factors that may cause such differences include, but are not limited to, those discussed under the "Forward-Looking Statements" above and "Item IA. Risk Factors" in Part I of this Annual Report on Form 10-K.

Business Overview

We are one of the world's leading CROs by revenue, solely focused on providing scientifically-driven outsourced clinical development services to the biotechnology, pharmaceutical and medical device industries. Our mission is to accelerate the global development of safe and effective medical therapeutics. We differentiate ourselves from our competitors by our disciplined operating model centered on providing full-service Phase I-IV clinical development services and our therapeutic expertise. We believe this combination results in timely and cost-effective delivery of clinical development services for our customers. We believe that we are a partner of choice for small- and mid-sized biopharmaceutical companies based on our ability to consistently utilize our full-service, disciplined operating model to deliver timely and high-quality results for our customers.

We focus on conducting clinical trials across all major therapeutic areas, with particular strength in Oncology, Metabolic Disease, Cardiology, Central Nervous System, or CNS, and Antiviral and Anti-infective, or AVAI. Our global platform includes approximately 5,900 employees across 42 countries, providing our customers with broad access to diverse markets and patient populations as well as local regulatory expertise and market knowledge.

How We Generate Revenue

We earn fees through the performance of services detailed in our customer contracts. Contract scope and pricing is typically based on either a fixed-fee or unit-of-service model, with consideration of activities performed by third parties, as well as ancillary costs necessary to deliver on the contract scope that are reimbursable by our customers. Our contracts can range in duration from a few months to several years. These contracts are individually priced and negotiated based on the anticipated project scope, including the complexity of the project and the performance risks inherent in the project. The majority of our contracts are structured with an upfront fee that is collected at the time of contract signing, and the balance of the fee is collected over the duration of the contract either through an arranged billing schedule or upon completion of certain performance targets or defined milestones.

Revenue, which is distinct from billing and cash receipt, is recognized based on the satisfaction of the individual performance obligations identified in each contract. Substantially all of our customer contracts consist of a single performance obligation, as the promise to transfer the individual services defined in the contracts are not separately identifiable from other promises in the contract, and therefore not distinct. Our performance obligations are generally satisfied over time and recognized as services are performed. The progression of our contract performance obligations are measured primarily utilizing the input method of cost to cost. Cancellation provisions in our contracts allow our customers to terminate a contract either immediately or according to advance notice terms specified within the applicable contract, which is typically 30 days. Contract cancellation may occur for various reasons, including, but not limited to, adverse patient reactions, lack of efficacy, or inadequate patient enrollment. Upon cancellation, we are entitled to fees for services rendered and reimbursable costs incurred through the date of termination, including payment for subsequent services necessary to conclude the study or close out the contract. These fees are typically discussed and agreed upon with the customer and are realized as revenue when we believe the amount can be estimated reliably and its realization is probable. Changes in revenue from period to period are driven primarily by new business volume and task order execution activity, project cancellations, changes in estimated costs to complete performance obligations, and the mix of active studies during a given period that can vary based on therapeutic area and or study life cycle stage. Refer to "Critical Accounting Policies and Estimates—Revenue Recognition," below.

Costs and Expenses

Our costs and expenses are comprised primarily of our total direct costs, selling, general and administrative costs, depreciation and amortization and income taxes.

Total Direct Costs

Total direct costs are primarily driven by labor and related employee benefits, but also include contracted third party service related expenses, fees paid to site investigators, reimbursed out of pocket expenses, laboratory supplies and other expenses contributing to service delivery. The other costs of service delivery can include office rent, utilities, supplies and software licenses which are allocated between Total direct costs and selling, general and administrative expenses based on the estimated contribution among service delivery and support function efforts on a percentage basis. Total direct costs are expensed as incurred and are not deferred in anticipation of contracts being awarded or finalization of changes in scope. Total direct costs, as a percentage of net revenue, can vary from period to period due to project labor efficiencies, changes in workforce, compensation/bonus programs and service mix.

Selling, General and Administrative

Selling, general and administrative expenses are primarily driven by compensation and related employee benefits, as well as rent, utilities, supplies, software licenses, professional fees (e.g., legal and accounting expenses), travel, marketing and other operating expenses.

Depreciation

Depreciation is provided on our property and equipment on the straight-line method at rates adequate to allocate the cost of the applicable assets over their estimated useful lives, which is three to five years for computer hardware, software, phone, and medical imaging equipment, five to seven years for furniture and fixtures and other equipment, and thirty to forty years for buildings. Leasehold improvements are amortized on a straight-line basis over the shorter of the estimated useful life of the improvement or the associated remaining lease term.

Amortization

Amortization relates to finite-lived intangible assets recognized as expense using the straight-line method or using an accelerated method over their estimated useful lives of 15 years.

Income Tax Provision

Income tax provision consists of federal, state and local taxes on income in multiple jurisdictions. Our income tax is impacted by the pre-tax earnings in jurisdictions with varying tax rates and any related tax credits that may be available to us. Our current and future provision for income taxes will vary from statutory rates due to the impact of valuation allowances in certain countries, income tax incentives, certain non-deductible expenses, and other discrete items.

Key Performance Metrics

To evaluate the performance of our business, we utilize a variety of financial and performance metrics. These key measures include net new business awards and backlog.

Net New Business Awards and Backlog

New business awards represent the value of anticipated future net revenue that has been recognized in backlog during the period. This value is recognized upon the signing of a contract or receipt of a written pre-contract confirmation from a customer that confirms an agreement in principle on budget and scope. New business awards also include contract amendments, or changes in scope, where the customer has provided written authorization for changes in budget and scope or has approved us to perform additional work as of the measurement date. Awards may not be recognized as backlog after consideration of a number of factors, including whether (i) the relevant net revenue is expected only after a pending regulatory hurdle, which might result in cancellation of the study, (ii) the customer funding needed for commencement of the study is not believed to have been secured or (iii) study timelines are uncertain or not well defined. In addition, study amounts that extend beyond three years from measurement date are not included in backlog. The number and amount of new business awards can vary significantly from period to period, and an award's contractual duration can range from several months to several years based on customer and project specifications.

Cancellations arise in the normal course of business and are reflected when we receive written confirmation from the customer to cease work on a contractual agreement or when we believe the future revenue is unlikely to be realized. The majority of our customers can terminate our contracts without cause upon 30 days' notice. Similar to new business awards,

the number and amount of cancellations can vary significantly period over period due to timing of customer correspondence and study-specific circumstances.

Net new business awards represent gross new business awards received in a period offset by total cancellations in that period. Net new business awards were $2,356.7 million and $1,829.5 million for the years ended December 31, 2023 and 2022, respectively.

Backlog represents anticipated future net revenue from net new business awards that have commenced, but have not been completed. Reported backlog will fluctuate based on new business awards, changes in scope to existing contracts, cancellations, net revenue recognition on existing contracts and foreign exchange adjustments from non-U.S. dollar denominated backlog. As of December 31, 2023, our backlog increased by $473.4 million, or 20.2% to $2,813.0 million compared to $2,339.6 million as of December 31, 2022. Included within backlog as of December 31, 2023 was approximately $1,520.0 million to $1,540.0 million that we expect to convert to net revenue in 2024, with the remainder expected to convert to net revenue in years after 2024.

The effect of foreign currency adjustments on backlog was as follows: favorable foreign currency adjustments of $14.6 million for the year ended December 31, 2023 and unfavorable foreign currency adjustments of $19.1 million for the year ended December 31, 2022.

Backlog and net new business award metrics may not be reliable indicators of our future period revenue as they are subject to a variety of factors that may cause material fluctuations from period to period. These factors include, but are not limited to, changes in the scope of projects, cancellations, and duration and timing of services provided.

Exchange Rate Fluctuations

The majority of our contracts and operational transactions are U.S. dollar denominated. The Euro represents the largest foreign currency denomination of our contractual and operational exposure. As a result, a portion of our revenue and expenses is subject to exchange rate fluctuations. We have translated the Euro into U.S. dollars using the following average exchange rates based on data obtained from www.xe.com:

	Year Ended December 31,	
	2023	2022
U.S. Dollars per Euro:	1.08	1.05

Results of Operations

This section generally discusses 2023 and 2022 items and year-to-year comparisons between 2023 and 2022. For a comparison of our results of operations for the fiscal years ended December 31, 2022 and December 31, 2021, see “Part II, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” of our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, filed with the SEC on February 14, 2023.

Year Ended December 31, 2023 compared to Year Ended December 31, 2022

(Amounts in thousands, except percentages)	Year Ended December 31, 2023	2022	Change	% Change
Revenue, net	$ 1,885,842	$ 1,459,996	$ 425,846	29.2 %
Direct service costs, excluding depreciation and amortization	638,249	534,887	103,362	19.3 %
Reimbursed out-of-pocket expenses	723,088	492,671	230,417	46.8 %
Total direct costs	1,361,337	1,027,558	333,779	32.5 %
Selling, general and administrative	161,352	131,400	29,952	22.8 %
Depreciation	24,129	18,989	5,140	27.1 %
Amortization	2,199	3,352	(1,153)	(34.4)%
Total operating expenses	1,549,017	1,181,299	367,718	31.1 %
Income from operations	336,825	278,697	58,128	
Miscellaneous (expense) income, net	(655)	7,068	(7,723)	
Interest expense, net	(488)	(2,905)	2,417	
Income before income taxes	335,682	282,860	52,822	
Income tax provision	52,872	37,492	15,380	
Net income	$ 282,810	$ 245,368	$ 37,442	

Total revenue

Total revenue increased by $425.8 million to $1,885.8 million for the year ended December 31, 2023, from $1,460.0 million for the year ended December 31, 2022. The increase was broad based, but primarily driven by strong activity within the Metabolic, Oncology, AVAI and other uncategorized therapeutic areas.

Total direct costs

Total direct costs increased by $333.8 million, to $1,361.3 million for the year ended December 31, 2023 from $1,027.6 million for the year ended December 31, 2022. The increase was primarily attributed to higher reimbursed out-of-pocket expenses and higher personnel costs to support the growth in service activities. Reimbursed out-of-pocket expenses, which can fluctuate significantly from period to period based on the timing of program initiation and closeout, increased $230.4 million for the year ended December 31, 2023, compared to the same period in the prior year. The higher personnel costs portion increased by $88.4 million in the year ended December 31, 2023, compared to the same period in the prior year.

Selling, general and administrative

Selling, general and administrative expenses increased by $30.0 million, to $161.4 million for the year ended December 31, 2023 from $131.4 million for the year ended December 31, 2022. The increase was primarily attributed to higher personnel costs to support the growth in service activities. Personnel costs increased by $19.7 million in the year ended December 31, 2023, compared to the same period in the prior year.

Depreciation and Amortization

Depreciation and amortization expense increased by $4.0 million, to $26.3 million for the year ended December 31, 2023 from $22.3 million for the year ended December 31, 2022. The increase in depreciation and amortization was primarily related to increased depreciation related to Property and equipment, net.

Miscellaneous (expense) income, net

Miscellaneous (expense) income, net changed by $7.7 million of expense to $0.7 million of expense for the year ended December 31, 2023 from $7.1 million of income for the year ended December 31, 2022. The change was mainly attributable to foreign exchange gains or losses that arise in connection with the revaluation of short-term inter-company balances between our domestic and international subsidiaries, gains or losses from foreign currency transactions, such as

those resulting from the settlement of third-party accounts receivables and payables denominated in a currency other than the local currency of the entity making the payment and third-party investment gains or losses.

Income tax provision

Income tax provision increased by $15.4 million, to $52.9 million for the year ended December 31, 2023 from $37.5 million for the year ended December 31, 2022. The overall effective tax rates for the years ended December 31, 2023 and 2022 were 15.8% and 13.3%, respectively. The increase in the income tax provision and overall effective rate was primarily attributable to the increase in pre-tax book income, an increase in uncertain tax positions, and a decrease in excess tax benefits recognized from share-based compensation, which was partially offset by an increase in tax benefits related to Foreign Derived Intangible Income ("FDII") compared to the same period in the prior year.

Liquidity and Capital Resources

We assess our liquidity in terms of our ability to generate cash to fund our operating, investing and financing activities. Our principal sources of liquidity are operating cash flows and from borrowings under our unsecured credit facility consisting of up to a $150.0 million revolving line of credit which we entered into on September 30, 2019 (the “Credit Facility”), and has subsequently been amended. As of December 31, 2023, we had cash and cash equivalents of $245.4 million, which increased from $28.3 million as of December 31, 2022. Approximately $29.5 million of our cash and cash equivalents, none of which was restricted, was held by our foreign subsidiaries as of December 31, 2023.

As of December 31, 2023, we had $150.0 million available for borrowing under the Credit Facility.

Our expected primary cash needs on both a short and long-term basis are for investment in operational growth, including additional lease commitments, capital expenditures, share repurchases, selective strategic bolt-on acquisitions, other investments, and other general corporate needs. We have historically funded our operations and growth with cash flow from operations and borrowings under our credit facilities. We expect to continue expanding our operations through organic growth and potentially highly selective bolt-on acquisitions and investments. As of December 31, 2023, cash commitments to support operating business needs include lease liabilities discussed in Note 8 of the Consolidated Financial Statements, purchase commitments discussed in Note 12 of the Consolidated Financial Statements and capital expenditures primarily related to infrastructure investments in our facilities, equipment and technology. Capital spending as a percentage of revenue decreased 59 basis points to 1.94% in the year ended December 31, 2023. We expect these activities will be funded from existing cash, cash flow from operations and, if necessary, borrowings under our existing or future credit facilities or other debt.

We have deemed that foreign earnings will be indefinitely reinvested and therefore we have not provided taxes on these earnings. While we do not anticipate the need to repatriate these foreign earnings for liquidity purposes given our cash flows from operations and available borrowings under existing and future credit facilities, we would incur taxes on these earnings if the need for repatriation due to liquidity purposes arises. We believe that our sources of liquidity and capital will be sufficient to finance our cash needs for the next 12 months and on a longer-term basis. However, we cannot assure you that our business will generate sufficient cash flow from operations, or that future borrowings will be available to us under our Credit Facility or otherwise, in an amount sufficient to fund our liquidity needs.

	Year Ended December 31,	
Cash Flows (Amounts in thousands)	**2023**	**2022**
Net cash provided by operating activities	$ 433,374	$ 388,050
Net cash used in investing activities	(34,629)	(38,742)
Net cash used in financing activities	(182,642)	(775,775)
Effect of exchange rates on cash, cash equivalents, and restricted cash	1,081	(6,572)
Increase (decrease) in cash, cash equivalents, and restricted cash	$ 217,184	$ (433,039)

Cash Flows from Operating Activities

Cash flows from operations are driven mainly by net income, deferred income tax benefit, depreciation, stock-based compensation expense, noncash lease expense and net movement in advanced billings, accrued expenses, and accounts receivable and unbilled, net. Accounts receivable and unbilled, net, and advanced billings fluctuate on a regular basis as we perform our services, bill our customers and ultimately collect on those receivables. We attempt to negotiate payment terms

in order to provide for payments prior to or soon after the provision of services, but this timing of collection can vary significantly on a period by period comparative basis.

Net cash flows provided by operating activities were $433.4 million for the year ended December 31, 2023 consisting of net income of $282.8 million. Adjustments to reconcile net income to net cash provided by operating activities were $44.1 million, primarily related to depreciation of $24.1 million, stock-based compensation expense of $20.5 million, and noncash lease expense of $19.6 million, partially offset by a deferred income tax benefit of $25.1 million. Changes in operating assets and liabilities provided $106.5 million in operating cash flows and were primarily driven by by increased advanced billings of $97.1 million and increased accrued expenses of $82.1 million, partially offset by increased accounts receivable and unbilled, net of $48.3 million.

Net cash flows provided by operating activities were $388.1 million for the year ended December 31, 2022 consisting of net income of $245.4 million. Adjustments to reconcile net income to net cash provided by operating activities were $36.6 million, primarily related to stock-based compensation expense of $21.4 million, depreciation of $19.0 million and noncash lease expense of $18.0 million, partially offset by a deferred income tax benefit of $23.0 million. Changes in operating assets and liabilities provided $106.1 million in operating cash flows and were primarily driven by increased advanced billings of $118.1 million and increased accrued expenses of $52.5 million, offset by increased accounts receivable and unbilled, net of $66.9 million.

Cash Flow from Investing Activities

Net cash used in investing activities was $34.6 million for the year ended December 31, 2023, primarily consisting of property and equipment expenditures.

Net cash used in investing activities was $38.7 million for the year ended December 31, 2022, primarily consisting of property and equipment expenditures.

Cash Flow from Financing Activities

Net cash used in financing activities was $182.6 million for the year ended December 31, 2023, primarily related to $155.0 million in repayments of the Credit Facility and $144.0 million in repurchases of common stock, partially offset by $105.0 million in proceeds from the Credit Facility and proceeds from stock options exercises of $11.4 million.

Net cash used in financing activities was $775.8 million for the year ended December 31, 2022, primarily related to $847.8 million in repurchases of common stock and $274.2 million in repayments of the Credit Facility, partially offset by $324.2 million in proceeds from the Credit Facility and proceeds from stock options exercises of $22.1 million.

Share Repurchases

In 2018, the Board of Directors approved a stock repurchase program which has been amended several times to increase the aggregate amount of the stock repurchase authorization. For the year ended December 31, 2022, the Company repurchased 5,463,244 shares for $800.5 million under this repurchase program. For the year ended December 31, 2021, the Company repurchased 377,783 shares for $62.1 million. As of June 30, 2022, the Company completed all authorized share repurchases under this repurchase program.

In the fourth quarter of 2022, the Board approved a new stock repurchase program of up to $500.0 million. For the year ended December 31, 2023, the Company repurchased 781,068 shares for $144.0 million under the new repurchase program. For the year ended December 31, 2022, the Company repurchased 228,247 shares for $47.2 million under the new repurchase program. As of December 31, 2023, we have remaining authorization of $308.8 million under the new repurchase program.

Repurchases under the share repurchase programs are executed in the open market or negotiated transactions under trading plans established pursuant to Rule 10b5-1. The Company constructively retires the repurchased shares associated with these approved share repurchase programs, except for a small portion which were retained as Treasury Shares on the consolidated statements of shareholders' equity. Retired share repurchase amounts paid in excess of par value are reflected within Accumulated deficit/Retained earnings in the Company’s consolidated balance sheets. The repurchase programs may be suspended or discontinued at any time without notice.

Indebtedness

On September 30, 2019 (the "Closing Date"), the Company obtained an unsecured credit facility in an aggregate principal amount up to $50.0 million (as amended from time to time, the "Credit Facility") through its wholly owned subsidiaries, Medpace, Inc., as borrower (the "Borrower"), and Medpace IntermediateCo, Inc., as guarantor (the "Guarantor").

On the Closing Date, the Borrower and lender entered into a Loan Agreement (as it may be amended from time to time, the "Loan Agreement") providing for the Credit Facility, and the Guarantor executed a Guaranty Agreement providing for its guarantee of the payment and performance of the obligations under the Loan Agreement. On March 15, 2022, the Company entered into Amendment No. 4 to the Loan Agreement, which increased the aggregate principal amount that may be borrowed under the facility's line of credit to up to $250.0 million. On March 31, 2023, the Company entered into Amendment No. 5 to the Loan Agreement, which changed the aggregate principal amount that may be borrowed under the facility's line of credit to up to $150.0 million, adjusted the interest rate and fee charged on the credit facility and extended the expiration date of resolving credit note to March 29, 2024.

The Credit Facility is guaranteed by the Guarantor and its material, direct or indirect wholly owned domestic subsidiaries, with certain exceptions, including where providing such guarantees is not permitted by law, regulation or contract or would result in adverse tax consequences. All of the obligations under the Credit Facility are unsecured.

The Credit Facility is subject to customary negative covenants. The Company was in compliance with all financial covenants as of December 31, 2023.

The Credit Facility contains certain events of default, including, among others, non-payment of principal or interest, breach of the covenants, cross default and cross acceleration to certain other indebtedness, defaults on monetary judgment orders, certain ERISA events, certain bankruptcy and insolvency events, actual or asserted invalidity of any guarantee or security document and change in control.

As of December 31, 2023, we have no indebtedness and less than $0.1 million in letters of credit outstanding related to certain operating lease obligations, which are secured by the Credit Facility.

Critical Accounting Policies and Estimates

The preparation of financial statements in accordance with generally accepted accounting principles in the United States of America, or US GAAP, requires us to make a variety of decisions which affect reported amounts and related disclosures, including the selection of appropriate accounting principles and the assumptions on which to base accounting estimates. In reaching such decisions, we apply judgment based on our understanding and analysis of the relevant circumstances, including our historical experience and other assumptions. Actual results could differ from our estimates. We are committed to incorporating accounting principles, assumptions and estimates that promote the representational faithfulness, verifiability, neutrality and transparency of the accounting information included in the financial statements.

Revenue Recognition

We generally enter into contracts with customers to provide services ranging in duration from a few months to several years. The contract terms generally provide for payments based on a fixed-fee or unit-of-service arrangement. We account for revenue in accordance with ASC 606, Revenue from Contracts with Customers. Revenue on contracts is recognized, when or as we satisfy the contract performance obligations by transferring control of the services provided to the customer, at the amount that reflects the consideration to which we expect to be entitled in exchange for transferring those services. Our performance obligations are generally satisfied over time and recognized as work progresses.

Contract Assumptions

Accounting for contracts performed over a period of time involves the use of various assumptions to estimate total contract revenue and costs. We estimate expected costs to complete a contract and recognize contracted revenue over the life of the contract as those costs are incurred while performing our contracted obligations.

Cost estimates are based on a detailed project budget and are developed based on many variables, including, but not limited to, the scope of the work, labor productivity, the complexity of the study, the participating geographic locations and the Company's historical experience. To assist with the estimation of costs expected at completion over the life of a project,

regular contract reviews are performed in which performance to date is compared to the most current estimate to complete assumptions. The reviews include an assessment of costs incurred to date compared to expectations based on budget assumptions and other circumstances specific to the project. The total estimated costs necessary to complete is updated and any revisions to the existing cost estimate results in cumulative adjustments to the amount of revenue recognized in the period in which the revisions are identified. Because of the uncertainties inherent in estimating the costs necessary to fulfill contractual obligations, it is possible that estimates may change in the near term.

Contracts generally provide for pricing modifications upon scope of work changes. We recognize revenue, at an amount to which we expect to be entitled, related to work performed in connection with scope changes when the underlying services are performed and a binding contractual commitment has been established with the customer. If our customers do not agree to pricing changes upon changes in our scope of work, we could be exposed to cost overruns and reduced contract profitability. Costs are not deferred in anticipation of contracts being awarded or amendments being finalized, but are expensed as incurred.

Most contracts are terminable by the customer, either immediately or according to advance notice terms specified within the contracts. These contracts require payment of fees for services rendered through the date of termination and may require payment for subsequent services necessary to conclude the study or close out the contract. Final settlement amounts are agreed to with the customer based on remaining work to be performed. These amounts are included in revenue when we believe the amount can be estimated reliably and its realization is probable. In evaluating the probability of recognition, we consider the contractual basis for the settlement amount and the objective evidence available to support the amount.

Certain contracts contain volume rebate arrangements with our customers that provide for rebates if certain specified spending thresholds are met. These obligations are considered as a reduction in revenue when it appears probable that the arrangement thresholds will be met.

We occasionally enter into incentive fee arrangements with customers that provide for additional compensation if certain defined contractual milestones or performance thresholds are met. These additional fees are included in the estimated transaction price when there is a basis to reasonably estimate the amount of the fee and when achievement of the incentive milestone is deemed probable. These estimates are based on anticipated performance, our best judgment at the time or ultimately, upon achievement of the threshold or milestone.

We record revenue net of any tax assessments by governmental authorities that are imposed and concurrent with specific revenue generating transactions.

Performance Obligations

Substantially all of our contracts consist of a single performance obligation, as the promise to transfer the individual services described in the contracts are not separately identifiable from other promises in the contracts, and therefore not distinct. Revenue recognition is determined by assessing the progress of performance completed or delivered to date compared to total services to be delivered under the terms of the arrangement. The measures utilized to assess progress on the satisfaction of performance are specific to the performance obligation identified in the contract.

For the majority of our contract performance obligations, we utilize the input method of cost to cost to measure progress. Under this method, the Company determines cost incurred to date for the services it provides compared to the total estimated costs at completion.

For certain other contractual performance obligations, the Company has determined that an output method is the best measure of progress. These relate to certain unitized contracts, and the Company recognizes revenue in the period in which the unit is delivered compared to total contracted units.

Income Taxes

We are subject to income taxes in the United States and numerous foreign jurisdictions. Significant judgment is required in the forecasting of taxable income using historical and projected future operating results in determining our provision for income taxes and the related assets and liabilities. The provision for income taxes includes income taxes paid, currently payable and receivable, and deferred taxes.

We record deferred tax assets and liabilities based on temporary differences between the financial statement bases and tax bases of assets and liabilities. Deferred tax assets are recorded for tax benefit carryforwards using tax rates anticipated to be in effect in the year in which temporary differences are expected to reverse. If it does not appear more likely than not that the full value of a deferred tax asset will be realized, the Company records a valuation allowance against the deferred tax asset, with an offsetting charge to the Company's income tax provision or benefit.

The recoverability of our deferred tax assets is estimated based on consideration of all available positive and negative evidence, including, but not limited to, our ability to generate a sufficient level of future taxable income, reversals of deferred tax liabilities (other than those with an indefinite reversal period), tax planning strategies and recent financial performance. The assessment of recoverability is performed on a jurisdiction by jurisdiction basis. Based on the analysis of the above factors, we determined that a valuation allowance in the amount of $1.8 million relating to certain tax credits and other deferred tax assets should be recorded as of December 31, 2023 and $0.4 million should be recorded as of December 31, 2022 relating to certain foreign deferred tax assets that are currently not expected to be realized. Differences in actual results compared to our estimates and changes in our assumptions could result in an adjustment to the valuation allowance in the future and would generally impact earnings or other comprehensive income depending on the nature of the respective deferred asset for which the valuation allowance exists.

We have recognized certain liabilities, including penalties and interest in the amount of $5.2 million as of December 31, 2023, within other long-term liabilities on the consolidated balance sheets. These relate to uncertain tax positions that are subject to various assumptions and judgment. Liabilities for these uncertain tax positions are assessed on a position by position basis. The calculation of these liabilities involves dealing with uncertainties in the application of complex tax regulations in both domestic and foreign jurisdictions. These positions may be subject to audit and review by tax authorities, and may result in future taxes, interest and penalties if we are unsuccessful in defending our positions. If the calculation of liability related to uncertain tax positions proves to be more or less than the ultimate assessment, a tax expense or benefit to expense, respectively would result.

As of December 31, 2023 and 2022, as a result of an updated analysis of future cash needs in the United States and opportunities for investment outside the United States, we assert that all foreign earnings will be indefinitely reinvested and therefore we have not provided taxes on these earnings. These undistributed earnings of foreign subsidiaries will support future growth in foreign markets and maintain current operating needs of foreign locations. We will continue to monitor our assertion related to investment of foreign earnings. See Note 11 of the Notes to Consolidated Financial Statements for further information regarding this assertion.

The Organization for Economic Co-operation and Development (OECD) has a framework to implement a global minimum corporate tax of 15% for companies with global revenues and profits above certain thresholds (referred to as Pillar Two), with certain aspects of Pillar Two effective January 1, 2024 and other aspects effective January 1, 2025. While it is uncertain whether the U.S. will enact legislation to adopt Pillar Two, certain countries in which we operate have adopted legislation, and other countries are in the process of introducing legislation to implement Pillar Two. As currently designed, Pillar Two will ultimately apply to our worldwide operations. There remains uncertainty as to the final Pillar Two model rules. We will continue to monitor US and global legislative action related to Pillar Two for potential impacts. At this time, we do not expect Pillar Two to have a material impact on our effective tax rate or our consolidated results of operation, financial position, and cash flows.

Stock Based Compensation

In connection with the Company's initial public offering (IPO), the Board approved the 2016 Incentive Award Plan (the "2016 Plan"). The 2016 Plan provides for long-term equity incentive compensation for key employees, officers and non-employee directors. A variety of discretionary awards (collectively, the "Awards") for employees and non-employee directors are authorized under the 2016 Plan, including vested common shares, stock options, stock appreciation rights (SARs), restricted stock awards (RSAs), restricted stock units (RSUs), or other cash based or stock dividend equivalent awards. All of our currently outstanding awards are subject to equity classification pursuant to the terms of the award grants and based on accounting guidance which governs such transactions. Accounting guidance applicable to equity classified awards require all stock based compensation, including vested shares, grants of employee stock options and restricted stock to be recognized in the consolidated statements of operations based on their grant date fair values.

We estimate the fair value of our stock options utilizing the Black-Scholes-Merton option pricing model, which requires the input of highly subjective assumptions including: the expected stock price volatility, the calculation of the expected holding period of the award, the risk free interest rate and expected dividends on the underlying common stock. Due to the

lack of Company specific historical and implied volatility data, our estimate of expected volatility is based upon a blended approach that utilizes the historical volatility of the Company's common stock for periods in which the Company has sufficient information and the historical volatility of a group of peer companies that are most representative of our company. The historical volatility is calculated based on a period of time commensurate with the expected holding period assumption. The holding period represents the period that our option awards are expected to be outstanding. We use the simplified method as prescribed by accounting guidance governing such awards, to calculate the expected term for options granted to employees as we do not have sufficient historical evidence data to provide a reasonable basis upon which to estimate the expected holding period. This simplified method utilizes the mid-point between the vesting date and the date of the contractual term. The risk free rate is based on extrapolated rates of U.S. Treasury bonds whose terms are consistent with the expected holding period of the stock options. We have assumed a dividend yield of zero as we have not historically paid any dividends on our common stock.

All our stock based option awards are subject to service based vesting conditions. Compensation expense related to stock option awards to employees is recognized on a straight line basis based on the grant date fair value over the associated service period of the award, which is equal to the vesting term.

The following table summarizes the key weighted average assumptions used in the Black-Scholes-Merton option pricing model to calculate the fair value of options during the periods:

	Year Ended December 31,		
	2023	2022	2021
Expected holding period - years	4.1	4.7	5.0
Expected volatility	45.4%	36.5%	34.3%
Risk-free interest rate	3.8%	1.9%	0.9%
Expected dividend yield	0.0%	0.0%	0.0%

The assumptions used in the table above reflect both grant date inputs to arrive at the grant date fair values for stock options subject to equity-classified stock compensation accounting and reflect a fair value calculation for stock options outstanding in the period subject to liability-classified stock compensation accounting. As of December 31, 2023, all outstanding stock based awards were classified within equity.

The weighted average grant date fair value of employee stock options granted was $85.30, $47.57 and $52.70 for the years ended December 31, 2023, 2022 and 2021, respectively.

Effect of Recent Accounting Pronouncements

Refer to Note 2 of the Notes to Consolidated Financial Statements for management’s discussion of the effect of recent accounting pronouncements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

Market risk is the potential loss arising from adverse changes in market rates and prices, such as foreign currency exchange rates, inflation, interest rates, and other relevant market rates or prices changes. We are exposed to market risk from changes in foreign currency exchange rates, inflation rate and credit risk and we regularly evaluate our exposure to such changes.

Foreign Currency Risk

We have business operations globally, and accordingly, we are exposed to foreign currency fluctuations that can affect our financial results. For the years ended December 31, 2023 and 2022, approximately 8.4% and 8.9%, respectively, of our revenue was derived from contracts denominated in currencies other than the U.S. dollar, whereas approximately 21.4% and 22.9% of our operational costs, including, but not limited to, salaries, wages and other employee benefits, were derived in foreign currencies. Of these exposures, approximately 76.9% and 74.2% of revenue denominated in foreign currencies and approximately 51.4% and 45.9% of operational costs denominated in foreign currencies were Euro denominated for the years ended December 31, 2023 and 2022, respectively. Our financial statements are reported in U.S. dollars and, accordingly, fluctuations in exchange rates will affect the translation of our revenues and expenses denominated in foreign currencies into U.S. dollars for purposes of reporting our consolidated financial results. We recalculated our reported pre-

tax income for the years ended December 31, 2023 and 2022 using foreign exchange rates that were 10% higher and 10% lower than actual exchange rates utilized during the year. When utilizing foreign exchange rates 10% higher than actual exchange rates, our pre-tax income for the years ended December 31, 2023 and 2022 is negatively impacted by approximately $17.2 million and $13.0 million, respectively. When utilizing foreign exchange rates 10% lower than actual exchange rates, our pre-tax income for the years ended December 31, 2023 and 2022 is positively impacted by approximately $17.2 million and $13.0 million, respectively.

We are also subject to foreign currency transaction risk for fluctuations in exchange rates during the period of time between contract commencement and cash settlement for services that we provide in relation to the contract. This exposure may affect our contract and operational profitability. To mitigate our foreign currency risk exposure we provide for exchange rate fluctuation adjustments subject to certain thresholds within our contracts where contract currency varies from currencies where costs will be incurred to support delivery of the contract.

Credit Risk

Financial instruments that subject the Company to credit risk primarily consist of cash and cash equivalents, and accounts receivable and unbilled, net. The cash and cash equivalent balances are held and maintained with high-quality financial institutions with reputable credit ratings and, consequently, we believe that such funds are subject to minimal credit risk.

We generally do not require collateral or other securities to support customer receivables. In the years ended December 31, 2023 and 2022, credit losses have been immaterial and within our expectations. Moreover, in many cases we require advance payment from our customers for a portion of the study contract price upon the signing of a service contract which helps to mitigate credit risk. As of the years ended December 31, 2023 and 2022, there were no major customers accounting for more than 10% of our accounts receivable and unbilled, net.

Inflation

Our contracts that provide for services to be performed in excess of a year generally are based on inflation assumptions for the portion of the services to be performed beyond one year. We do not have significant operations in countries where the economy is considered highly inflationary. Since the second half of fiscal 2021 and throughout 2022 and 2023, we have experienced input cost inflation, including materials, labor and transportation costs. Pricing actions and supply chain productivity initiatives have mitigated and are expected to continue to mitigate some of these inflationary pressures, but we may not be successful in fully offsetting these incremental costs, which could have an impact on the Company’s results of operations and cash flows in the future. Additionally, if actual rates are greater than our inflation assumptions, inflation could have a material adverse effect on our operations or financial condition.

Interest Rates

We are primarily exposed to interest rate risk through our Credit Facility. As of the year ended December 31, 2023, we had no outstanding long-term debt. As of the year ended December 31, 2022, we had outstanding amounts related to the Credit Facility of $50.0 million. The Credit Facility is subject to variable interest rates. Each quarter-point increase or decrease in the applicable interest rate as of the year ended December 31, 2022 would change our interest expense by approximately $0.2 million. The Credit Facility is not subject to any interest rate caps or floors.

Item 8. Financial Statements and Supplementary Data.

Management's Report on Internal Control Over Financial Reporting

Management of Medpace Holdings, Inc. (the “Company”) is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our consolidated financial statements for external reporting purposes in accordance with accounting principles generally accepted in the United States of America. Internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company, (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of consolidated financial statements in accordance with accounting principles generally accepted in the United States of America, and that receipts and expenditures are being made only in accordance with authorizations of our management and directors, and (3) 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 consolidated financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements in the consolidated financial statements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of the Company’s internal control over financial reporting as of December 31, 2023. In making these assessments, management used the framework established by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control — Integrated Framework (2013). Based on management’s assessment and the criteria in the COSO framework, management has concluded that the Company’s internal control over financial reporting as of December 31, 2023 was effective.

The effectiveness of the Company’s internal control over financial reporting has been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report included herein.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Medpace Holdings, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Medpace Holdings, Inc. and subsidiaries (the "Company") as of December 31, 2023 and 2022, the related consolidated statements of operations, comprehensive income, shareholders' equity, and cash flows, for each of the three years in the period ended December 31, 2023, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 13, 2024, expressed an unqualified opinion on the Company's internal control over financial reporting.

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 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. 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 Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates 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 financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Revenue Recognition — Clinical Research– Refer to Note 2 to the financial statements

Critical Audit Matter Description

The Company recognizes contract revenue over the contract term as the service progresses, as the transfer of control to the customer is continuous. Substantially all of the Company’s clinical research contracts consist of a single performance obligation as the promise to transfer individual services described in the contracts are not separately identifiable from other promises in the contracts, and therefore not distinct. The accounting for these contracts involves judgment, particularly as it relates to the process of estimating costs to complete a contract for the performance obligation, which includes direct costs, reimbursable out-of-pocket costs, and reimbursable investigator site payments. Contract costs are recognized as incurred, and revenue recognition is based on cost incurred to date for the services provided compared to the total estimated costs to complete a contract.

Given the judgments necessary to estimate costs to complete a contract for the performance obligation used to recognize revenue for certain clinical research contracts over time, auditing such estimates required extensive audit effort due to the complexity of contracts and a high degree of auditor judgment when performing audit procedures and evaluating the results of those procedures.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to management's estimates of costs to complete a contract for the performance obligation used to recognize revenue for clinical research contracts included the following, among others:

- We tested the effectiveness of controls over revenue recognized throughout the contract term, including management's controls over estimates of future services to be delivered and costs to be incurred under the contract.
- We selected a sample of contracts and performed the following:
    - Evaluated whether the contracts were properly included in management's calculation of contract revenue based on the terms and conditions of each selected contract, including whether continuous transfer of control to the customer occurred as progress was made toward fulfilling the performance obligation.
    - Compared the transaction prices to the consideration expected to be received based on current rights and obligations under the contracts and any pricing modifications and scope changes that were agreed upon with the customers.
    - Tested management's identification of distinct performance obligations by evaluating whether the progress of performance completed or delivered to date compared to total services to be delivered under the terms of the arrangement.
    - Evaluated estimates of costs to complete a contract for the performance obligation by:
        - Comparing costs incurred to date to the costs management estimated to be incurred to date.
        - Evaluating management's ability to achieve the estimates of total contract cost by performing corroborating inquiries with the Company's project managers and financial analysts, and comparing the estimates to management's work plans and cost estimates.
    - Tested the mathematical accuracy of management's calculation of revenue for the performance obligation.
- We selected a sample of costs related to performance obligations and tested the accuracy and completeness of those costs incurred during the year.
- We selected a sample of contracts and evaluated management's ability to estimate total contract costs accurately by comparing actual costs to management's historical estimates.

/s/ Deloitte & Touche LLP

Cincinnati, Ohio
February 13, 2024

We have served as the Company's auditor since 2002.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Medpace Holdings, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Medpace Holdings, Inc. and subsidiaries (the "Company") as of December 31, 2023, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2023, of the Company and our report dated February 13, 2024, expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's 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 generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) 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.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Deloitte & Touche LLP

Cincinnati, Ohio
February 13, 2024

MEDPACE HOLDINGS, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

(Amounts in thousands, except share amounts)

	As Of December 31,	
	2023	**2022**
ASSETS		
Current assets:		
Cash and cash equivalents	$ 245,449	$ 28,265
Accounts receivable and unbilled, net (includes $2.4 million and $7.7 million with related parties at December 31, 2023 and 2022, respectively)	298,400	253,404
Prepaid expenses and other current assets (includes $0.3 million with related parties at December 31, 2023)	49,979	52,293
Total current assets	593,828	333,962
Property and equipment, net	120,589	109,849
Operating lease right-of-use assets	144,801	139,068
Goodwill	662,396	662,396
Intangible assets, net	35,809	38,008
Deferred income taxes	74,435	48,083
Other assets	24,970	21,129
Total assets	$ 1,656,828	$ 1,352,495
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable (includes $3.1 million and $0.3 million with related parties at December 31, 2023 and 2022, respectively)	$ 31,869	$ 33,069
Accrued expenses	292,961	210,125
Advanced billings (includes $10.1 million and $8.8 million with related parties at December 31, 2023 and 2022, respectively)	559,860	462,729
Short-term debt	—	50,000
Other current liabilities (includes $12.5 million with related parties at December 31, 2022)	40,441	47,547
Total current liabilities	925,131	803,470
Operating lease liabilities	142,122	138,867
Deferred income tax liability	2,404	1,070
Other long-term liabilities	28,221	22,701
Total liabilities	1,097,878	966,108
Commitments and contingencies (see Note 12)		
Shareholders' equity:		
Preferred stock - $0.01 par-value; 5,000,000 shares authorized; no shares issued and outstanding at December 31, 2023 and 2022, respectively	—	—
Common stock - $0.01 par-value; 250,000,000 shares authorized at December 31, 2023 and 2022, respectively; 30,752,292 and 31,091,694 shares issued and outstanding at December 31, 2023 and 2022, respectively	308	309
Treasury stock - 70,573 and 71,573 shares at December 31, 2023 and 2022, respectively	(12,322)	(12,497)
Additional paid-in capital	802,681	770,794
Accumulated deficit	(221,645)	(359,827)
Accumulated other comprehensive loss	(10,072)	(12,392)
Total shareholders' equity	558,950	386,387
Total liabilities and shareholders' equity	$ 1,656,828	$ 1,352,495

See notes to consolidated financial statements.

MEDPACE HOLDINGS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS

(Amounts in thousands, except per share amounts)

	Year Ended December 31,		
	2023	**2022**	**2021**
Revenue, net (includes $59.6 million, $55.4 million and $34.5 million with related parties for the years ended December 31, 2023, 2022 and 2021, respectively)	$ 1,885,842	$ 1,459,996	$ 1,142,377
Operating expenses:			
Direct service costs, excluding depreciation and amortization	638,249	534,887	441,090
Reimbursed out-of-pocket expenses	723,088	492,671	373,132
Total direct costs	1,361,337	1,027,558	814,222
Selling, general and administrative	161,352	131,400	108,421
Depreciation	24,129	18,989	16,005
Amortization	2,199	3,352	5,114
Total operating expenses	1,549,017	1,181,299	943,762
Income from operations	336,825	278,697	198,615
Other (expense) income, net:			
Miscellaneous (expense) income, net	(655)	7,068	3,342
Interest expense, net	(488)	(2,905)	(105)
Total other (expense) income, net	(1,143)	4,163	3,237
Income before income taxes	335,682	282,860	201,852
Income tax provision	52,872	37,492	20,004
Net income	$ 282,810	$ 245,368	$ 181,848
Net income per share attributable to common shareholders:			
Basic	$ 9.20	$ 7.57	$ 5.06
Diluted	$ 8.88	$ 7.28	$ 4.81
Weighted average common shares outstanding:			
Basic	30,722	32,388	35,862
Diluted	31,841	33,671	37,697

See notes to consolidated financial statements.

MEDPACE HOLDINGS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(Amounts in thousands)

	Year Ended December 31,		
	2023	**2022**	**2021**
Net income	$ 282,810	$ 245,368	$ 181,848
Other comprehensive income (loss)			
Foreign currency translation adjustments, net of taxes	2,320	(7,546)	(4,715)
Comprehensive income	$ 285,130	$ 237,822	$ 177,133

See notes to consolidated financial statements.

MEDPACE HOLDINGS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

(Amounts in thousands)

	Common Stock	Treasury Stock	Additional Paid-In Capital	(Accumulated Deficit) Retained Earnings	Accumulated Other Comprehensive Loss	Total
BALANCE — December 31, 2020	$ 355	$ (5,578)	$ 695,904	$ 115,229	$ (131)	$ 805,779
Net income				181,848		181,848
Foreign currency translation					(4,715)	(4,715)
Stock-based compensation expense			14,469			14,469
Stock options exercised	8	151	17,484			17,643
Repurchases of common stock	(3)			(62,093)		(62,096)
BALANCE — December 31, 2021	$ 360	$ (5,427)	$ 727,857	$ 234,984	$ (4,846)	$ 952,928
Net income				245,368		245,368
Foreign currency translation					(7,546)	(7,546)
Stock-based compensation expense			21,412			21,412
Stock options exercised	6	1,746	21,525	(1,203)		22,074
Repurchases of common stock	(57)	(14,243)		(833,549)		(847,849)
Retirement of treasury stock		5,427		(5,427)		—
BALANCE — December 31, 2022	$ 309	$ (12,497)	$ 770,794	$ (359,827)	$ (12,392)	$ 386,387
Net income				282,810		282,810
Foreign currency translation					2,320	2,320
Stock-based compensation expense			20,516			20,516
Stock options exercised	7		11,371			11,378
Repurchases of common stock	(8)			(144,453)		(144,461)
Re-issuance of treasury stock		175		(175)		—
BALANCE — December 31, 2023	$ 308	$ (12,322)	$ 802,681	$ (221,645)	$ (10,072)	$ 558,950

See notes to consolidated financial statements.

MEDPACE HOLDINGS, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

(Amounts in thousands)

	Year Ended December 31,		
	2023	**2022**	**2021**
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net income	$ 282,810	$ 245,368	$ 181,848
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation	24,129	18,989	16,005
Amortization	2,199	3,352	5,114
Stock-based compensation expense	20,516	21,412	14,469
Noncash lease expense	19,646	18,015	16,288
Deferred income tax benefit	(25,117)	(23,014)	(37,112)
Other	2,705	(2,127)	8
Changes in assets and liabilities:			
Accounts receivable and unbilled, net	(48,282)	(66,920)	(24,982)
Prepaid expenses and other current assets	2,986	(10,175)	(9,134)
Accounts payable	1,051	6,431	1,866
Accrued expenses	82,080	52,476	26,156
Advanced billings	97,131	118,088	88,977
Lease liabilities	(18,873)	(15,899)	(15,632)
Other assets and liabilities, net	(9,607)	22,054	(544)
Net cash provided by operating activities	433,374	388,050	263,327
CASH FLOWS FROM INVESTING ACTIVITIES:			
Property and equipment expenditures	(36,648)	(36,879)	(28,271)
Other	2,019	(1,863)	(3,093)
Net cash used in investing activities	(34,629)	(38,742)	(31,364)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from stock option exercises	11,378	22,074	17,643
Repurchases of common stock	(144,020)	(847,849)	(62,096)
Proceeds from revolving loan	105,000	324,200	—
Payments on revolving loan	(155,000)	(274,200)	—
Net cash used in financing activities	(182,642)	(775,775)	(44,453)
EFFECT OF EXCHANGE RATES ON CASH, CASH EQUIVALENTS, AND RESTRICTED CASH	1,081	(6,572)	(3,972)
INCREASE (DECREASE) IN CASH, CASH EQUIVALENTS, AND RESTRICTED CASH	217,184	(433,039)	183,538
CASH, CASH EQUIVALENTS, AND RESTRICTED CASH — Beginning of period	28,265	461,304	277,766
CASH, CASH EQUIVALENTS, AND RESTRICTED CASH — End of period	$ 245,449	$ 28,265	$ 461,304
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION—			
Cash paid during the period for income taxes	$ 76,353	$ 50,164	$ 56,243
Cash paid during the period for interest	$ 3,056	$ 2,935	$ 123
Acquisition of property and equipment—non-cash	$ 5,254	$ 7,838	$ 6,352

See notes to consolidated financial statements.

As of December 31, 2023 and 2022, and for the Years Ended December 31, 2023, 2022 and 2021

1. BASIS OF PRESENTATION

Description of Business

Medpace Holdings, Inc. together with its subsidiaries, ("Medpace" or the "Company"), a Delaware corporation, is a global provider of clinical research-based drug and medical device development services. The Company partners with pharmaceutical, biotechnology, and medical device companies in the development and execution of clinical trials. The Company's drug development services focus on full service Phase I-IV clinical development services and include development plan design, coordinated central laboratory, project management, regulatory affairs, clinical monitoring, data management and analysis, pharmacovigilance new drug application submissions, and post-marketing clinical support. The Company also provides bio-analytical laboratory services, clinical human pharmacology, imaging services, and electrocardiography reading support for clinical trials.

The Company's operations are principally based in North America, Europe, and Asia.

Share Repurchases

In 2018, the Board of Directors approved a stock repurchase program which has been amended several times to increase the aggregate amount of the stock repurchase authorization. For the year ended December 31, 2022, the Company repurchased 5,463,244 shares for $800.5 million under this repurchase program. For the year ended December 31, 2021, the Company repurchased 377,783 shares for $62.1 million. As of June 30, 2022, the Company completed all authorized share repurchases under this repurchase program.

In the fourth quarter of 2022, the Board approved a new stock repurchase program of up to $500.0 million. For the year ended December 31, 2023, the Company repurchased 781,068 shares for $144.0 million under the new repurchase program. For the year ended December 31, 2022, the Company repurchased 228,247 shares for $47.2 million under the new repurchase program. As of December 31, 2023, we have remaining authorization of $308.8 million under the new repurchase program.

Repurchases under the share repurchase programs are executed in the open market or negotiated transactions under trading plans established pursuant to Rule 10b5-1. The Company constructively retires the repurchased shares associated with these approved share repurchase programs, except for a small portion which were retained as Treasury Shares on the consolidated statements of shareholders' equity. Retired share repurchase amounts paid in excess of par value are reflected within Accumulated deficit/Retained earnings in the Company's consolidated balance sheets. The repurchase programs may be suspended or discontinued at any time without notice.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation and Presentation

The accompanying consolidated financial statements have been prepared in accordance with generally accepted accounting principles in the United States of America ("US GAAP") and include the accounts and operations of the Company and its subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with US GAAP requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. Actual results could differ from these estimates.

Significant items that are subject to management estimates and assumptions include revenue, net, allowances for doubtful accounts, acquisition purchase price allocations, long-lived asset impairment and useful lives, exit liabilities, stock-based compensation, uncertain income tax positions and contingencies.

Reportable Segments

The Company emphasizes its full service outsourcing model, providing services focused on the development, management and execution of clinical trials. As part of this full service approach, the Company utilizes centralized systems, customer interface technology, support functions and processes that cross service offerings and align resources to deliver efficient clinical trial services. Given the full service approach, the chief executive officer, who is the chief operating decision maker ("CODM") assesses the allocation of resources based on key metrics including revenue, backlog, and net awards by service offering and consolidated profitability and consolidated cash flows. Based on the Company's full service model, internal management and reporting structure, and key metrics used by the CODM to make resource allocation decisions, management has determined that the Company's operations consist of a single operating segment. Therefore, results of operations are presented as a single reportable segment.

Foreign Currencies

Assets and liabilities recorded in foreign currencies on foreign subsidiary financial statements are translated at the exchange rate on the balance sheet date, while equity accounts are translated at historical exchange rates. Revenue and expenses are recorded at average rates of exchange during the year. Translation adjustments are recorded to Accumulated other comprehensive loss in the consolidated statements of shareholders' equity and consolidated statements of comprehensive income.

Separately, net realized gains and losses on foreign currency transactions are included in Miscellaneous income, net, on the consolidated statements of operations. Foreign currency transactions resulted in a net (loss)/gain of $(1.9) million, $3.9 million, and $2.8 million during the years ended December 31, 2023, 2022, and 2021, respectively.

Revenue Recognition

The Company generally enters into contracts with customers to provide services ranging in duration from a few months to several years. The contract terms generally provide for payments based on a fixed fee or unit-of-service arrangement. The Company accounts for revenue in accordance with ASC 606, *Revenue from Contracts* with Customers. Revenue on contracts is recognized when or as the Company satisfies the contract performance obligations, at the amount that reflects the Company's cumulative progress toward delivery of the performance obligation. This progress assessment is applied to the amount of consideration to which the Company expects to be paid for delivery of the performance obligation. The Company's performance obligations are generally satisfied over time and related revenue is recognized as services are provided to meet these obligations.

Contract Assumptions

An arrangement is accounted for as a contract within the scope of ASC 606 when the Company and its customers approve the contract, are committed to perform their respective obligations, each party can identify its rights regarding the goods or services to be transferred, commercial substance is present, and it is probable that the Company will collect substantially all of the consideration to which it will be entitled in exchange for the goods or services that will be transferred to the customer.

For the Company's services to meet this criteria, contracts generally need to be written, pending regulatory hurdles required to commence work must be cleared, the study protocol must be completed, the customer must have adequate funding or reasonable path to funding to execute the contracted portion of the study, and the study must be actively moving forward. Once these criteria have been met, it is deemed that the Company and its customers are committed to perform their respective obligations. Depending on the timing of when these criteria are met, revenue recognition may vary significantly on a period over period basis.

Accounting for contracts performed over a period of time involves the use of various assumptions to estimate total contract revenue and costs. The Company estimates expected costs to complete a contract and recognizes contracted revenue over the life of the contract as those costs are incurred.

Cost estimates are based on a detailed project budget and are developed based on many variables, including, but not limited to, the scope of the work, the complexity of the study, the participating geographic locations and the Company's historical experience. To assist with the estimation of costs expected at completion over the life of a project, regular contract reviews are performed in which performance to date is compared to the most current estimate to complete assumptions. The reviews include an assessment of costs incurred to date compared to expectations based on budget assumptions and other

circumstances specific to the project. The total estimated costs necessary to complete is updated and any revisions to the existing cost estimate results in cumulative adjustments to the amount of revenue recognized in the period in which the revisions are identified. In the case of cost estimates related to activities legally contracted as reimbursable in nature, including but not limited to investigator fee activity, these estimates also influence the Company's assumed contract value and assumed remaining performance obligations. Because of the uncertainties inherent in estimating the costs necessary to fulfill contractual obligations, it is possible that estimates may change in the near term, resulting in a material change in revenue reported.

Contracts generally provide for pricing modifications upon scope of work changes. The Company recognizes revenue, at an amount to which it expects to be entitled, related to work performed in connection with scope changes when the underlying services are performed and a binding contractual commitment has been established with the customer. If the Company's customers do not agree to contract changes upon changes in the Company's scope of work, the Company could be exposed to cost overruns and reduced contract profitability. Costs are not deferred in anticipation of contracts being awarded or amendments being finalized, but are expensed as incurred.

Most contracts are terminable by the customer, either immediately or according to advance notice terms specified within the contracts. These contracts require payment of fees for services rendered through the date of termination and may require payment for subsequent services necessary to conclude the study or close out the contract. Final settlement amounts are agreed to with the customer based on remaining work to be performed. These amounts are included in revenue when the Company believes the amount can be estimated reliably and its realization is probable. In evaluating the probability of recognition, the Company considers the contractual basis for the settlement amount and the objective evidence available to support the amount.

Certain contracts contain volume rebate arrangements with our customers that provide for rebates if certain specified spending thresholds are met. These obligations are considered as a reduction in revenue when it appears probable that the arrangement thresholds will be met, which can be at contract inception. Total revenue is presented net of rebates of $12.1 million, $7.9 million and $7.2 million in the consolidated statements of operations during the years ended December 31, 2023, 2022 and 2021, respectively.

The Company occasionally enters into incentive fee arrangements with customers that provide for additional compensation if certain defined contractual milestones or performance thresholds are met. These additional fees are included in the estimated transaction price when there is a basis to reasonably estimate the amount of the fee and when achievement of the incentive milestone is deemed probable. These estimates are based on anticipated performance, the Company's best judgment at the time or ultimately, upon achievement of the threshold or milestone.

The Company records revenue net of any tax assessments by governmental authorities that are imposed and concurrent with specific revenue generating transactions.

Performance Obligations

Substantially all of the Company's contracts consist of a single performance obligation, as the promise to transfer the individual services described in the contracts are not separately identifiable from other promises in the contracts, and therefore not distinct. Revenue recognition is determined by assessing the progress of performance completed or delivered to date compared to total services to be delivered under the terms of the arrangement. The measures utilized to assess progress on the satisfaction of performance are specific to the performance obligation identified in the contract.

For the majority of the Company's contract performance obligations, it utilizes the input method of cost to cost to measure progress, as the Company has determined that it is the most consistent measure of progress among contract tasks and represents the most faithful depiction of the transfer of services over the contract life. Under this method, the Company determines cost incurred to date for the services it provides compared to the total estimated costs at completion.

For certain other contractual performance obligations, the Company has determined that an output method is the best measure of progress. These relate to certain unitized contracts, and the Company recognizes revenue in the period in which the unit is delivered compared to total contracted units.

As of December 31, 2023 and 2022, the Company had approximately $2.9 billion and $2.7 billion of performance obligations remaining to be performed for active projects.

Concentration of Credit Risk

Financial instruments that subject the Company to credit risk primarily consist of cash and cash equivalents and accounts receivable. The cash and cash equivalent balances are held and maintained with financial institutions with reputable credit ratings and, consequently, the Company believes that such funds are subject to minimal credit risk.

The Company generally does not require collateral or other securities to support customer receivables. In the years ended December 31, 2023, 2022 and 2021, credit losses have been immaterial and within management's expectations. At December 31, 2023 and 2022, there were no customers accounting for more than 10% of the Company's accounts receivable.

Costs and Expenses

The Company incurs costs associated with service delivery including direct labor and related employee benefits, laboratory supplies, and other expenses. These costs are recorded in Direct service costs, excluding depreciation and amortization as a component of Total direct costs in the accompanying consolidated statements of operations. In addition, the Company incurs expenses on behalf of its customers for various project expenditures including, but not limited to, investigator site payments, travel, meetings, printing, and shipping and handling fees that are reimbursed by its customers at cost. These costs are included in Reimbursable out-of-pocket expenses as a component of Total direct costs in the accompanying consolidated statements of operations. Total direct costs are expensed as incurred and are not deferred in anticipation of contracts being awarded or finalization of changes in scope. Selling, general and administrative includes administrative payroll and related employee benefits, sales and marketing expenses, administrative travel, and other expenses not directly related to service delivery. Rent, utilities, supplies, and software license expenses are allocated between Total direct costs, and Selling, general and administrative based on the estimated contribution among service delivery and support function efforts on a percentage basis. Depreciation and amortization is reported separately in the accompanying consolidated statements of operations. Costs of sales and marketing activities not subject to recovery pursuant to customer contracts, such as feasibility assessments and negotiation of contracts, are expensed as incurred and recorded as a component of Selling, general and administrative in the accompanying consolidated statements of operations.

Advertising expenses are recorded as a component of Selling, general and administrative expenses in the accompanying consolidated statements of operations. Total advertising expenses of $1.5 million, $1.3 million and $1.2 million were incurred during the years ended December 31, 2023, 2022 and 2021, respectively.

Income Taxes

The Company's consolidated US federal income tax return is comprised of its US subsidiaries, its foreign branches and certain foreign subsidiaries.

The Company provides for income taxes on all transactions that have been recognized in the consolidated financial statements in accordance with accounting guidance governing income tax accounting. Accordingly, the impact of changes in income tax laws on deferred tax assets and deferred tax liabilities are recognized in net earnings in the period during which such changes are enacted.

The Company records deferred tax assets and liabilities based on temporary differences between the financial statement bases and tax bases of assets and liabilities. Deferred tax assets are recorded for tax benefit carryforwards using tax rates anticipated to be in effect in the year in which the temporary differences are expected to reverse. If it does not appear more likely than not that the full value of a deferred tax asset will be realized, the Company records a valuation allowance against the deferred tax asset, with an offsetting charge to the Company's income tax provision or benefit. The value of the Company's deferred tax assets is estimated based on, among other things, the Company's ability to generate a sufficient level of future taxable income. In estimating future taxable income, the Company has considered both positive and negative evidence, such as historical and forecasted results of operations, and has considered the implementation of prudent and feasible tax planning strategies.

The Company's accounting position is that unremitted foreign earnings are indefinitely reinvested. Therefore, the Company has not recorded deferred foreign withholding taxes on the unremitted foreign earnings. Refer to Note 11 for further information regarding this assertion.

The Company follows accounting guidance related to accounting for uncertainty in income taxes which requires significant judgment in determining what constitutes an individual tax position as well as assessing the possible outcome of each tax

position. Changes in judgments as to recognition or measurement of tax positions can materially affect the estimate of the effective tax rate, and, consequently, the Company's consolidated financial results. The Company considers many factors when evaluating and estimating tax positions and tax benefits, which may require periodic adjustments and which may not accurately anticipate actual outcomes. In addition, the calculation of tax liabilities involves dealing with uncertainties in the application of complex tax regulations in a multitude of jurisdictions. The Company determines its liability for uncertain tax positions globally. If the payment of these amounts ultimately proves to be unnecessary, the reversal of liabilities would result in tax benefits being recognized in the period when it is determined the liabilities are no longer necessary. If the calculation of the liability related to uncertain tax positions proves to be more or less than the ultimate assessment, a tax expense or tax benefit would result. Interest and penalties associated with uncertain tax positions are recognized as components of the Company's Income tax provision.

Stock-Based Compensation

The Company has stock-based employee compensation plans for which it incurs compensation expense.

Equity Awards

In connection with the Company's initial public offering (IPO), the Board approved the formation of the 2016 Incentive Award Plan (the "2016 Plan"). The 2016 Plan provides for long-term equity incentive compensation for key employees, officers and non-employee directors. A variety of discretionary awards (collectively, the "Awards") for employees and non-employee directors are authorized under the 2016 Plan, including vested common shares, stock options, stock appreciation rights (SARs), restricted stock awards (RSAs), restricted stock units (RSUs), or other cash based or stock dividend equivalent awards. The vesting of such awards may be conditioned upon either a specified period of time or the attainment of specific performance goals as determined by the administrator of the 2016 Plan. The option price and term are also subject to determination by the administrator with respect to each grant. Option prices are generally expected to be set at the market price of our common stock at the date of grant and option terms are not expected to exceed ten years. All outstanding Awards under the 2016 Plan are equity classified awards.

Stock-based compensation expense for the 2016 Plan is calculated using the fair value method on the grant date. The Company expenses stock-based compensation over the term of the award based on the vesting described in the award agreement. Stock-based compensation expense is allocated between Total direct costs, and Selling, general and administrative in the consolidated statements of operations based on the underlying classification and scope of work for the employees receiving the Awards.

Net Income Per Share

Basic and diluted earnings or loss per share (EPS) are computed using the two-class method, which is an earnings allocation that determines EPS for each class of common stock and participating securities according to dividends declared and participation rights in undistributed earnings. The Company's RSAs are considered participating securities because they are legally issued at the date of grant and holders are entitled to receive non-forfeitable dividends during the vesting term.

The computation of diluted EPS includes additional common shares, such as unvested RSUs and stock options with exercise prices less than the average market price of the Company's common stock during the period ("in-the-money options"), which would be considered outstanding. This assumes that additional shares would have to be issued in cases where the exercise price of stock options is less than the value of the common stock being acquired because the cash proceeds received from the stock option holder would not be sufficient to acquire that same number of shares. The Company does not compute diluted EPS in cases where the inclusion of such additional shares would be anti-dilutive in effect.

The following table sets forth the computation of basic and diluted earnings per share for the years ended December 31, 2023, 2022 and 2021 (in thousands, except for earnings per share):

	Year Ended December 31,		
	2023	2022	2021
Weighted-average shares:			
Common shares outstanding	30,722	32,388	35,862
RSAs	21	21	90
Total weighted-average shares	30,743	32,409	35,952
Earnings per common share—Basic			
Net income	$ 282,810	$ 245,368	$ 181,848
Less: Undistributed earnings allocated to RSAs	(191)	(157)	(458)
Net income available to common shareholders—Basic	$ 282,619	$ 245,211	$ 181,390
Net income per common share—Basic	$ 9.20	$ 7.57	$ 5.06
Basic weighted-average common shares outstanding	30,722	32,388	35,862
Effect of diluted shares	1,119	1,283	1,835
Diluted weighted-average shares outstanding	31,841	33,671	37,697
Net income per common share—Diluted	$ 8.88	$ 7.28	$ 4.81

For the years ended December 31, 2023, 2022 and 2021, the computation of diluted EPS excludes the effect of (in thousands) 0, 9 and 9 stock options, respectively, due to each respective period's average fair value of the Company's common stock not exceeding the exercise prices.

Fair Value Measurements

The Company follows accounting guidance related to fair value measurements that defines fair value, establishes a framework for measuring fair value, and establishes a hierarchy for inputs used in measuring fair value. This hierarchy maximizes the use of "observable" inputs and minimizes the use of unobservable inputs by requiring that the most observable inputs be used when available. The hierarchy specifies three levels based on the inputs, as follows:

Level 1: Valuations based on quoted prices in active markets for identical assets or liabilities.

Level 2: Valuations based on directly observable inputs or unobservable inputs corroborated by market data.

Level 3: Valuations based on unobservable inputs supported by little or no market activity representing management's determination of assumptions of how market participants would price the assets or liabilities.

The fair value of financial instruments such as cash and cash equivalents, accounts receivable and unbilled, net, accounts payable, accrued expenses, and advanced billings approximate their carrying amounts due to their short term maturities.

The Company does not have any material recurring fair value measurements as of December 31, 2023 and 2022. There were no material transfers between Level 1, Level 2, or Level 3 during the years ended December 31, 2023, 2022 and 2021.

Cash and Cash Equivalents, including Restricted Cash

Cash and cash equivalents, including restricted cash, are invested in demand deposits and money market funds, all of which have an original maturity of three months or less. Restricted cash consists of customer funds received in advance and subject to specific restrictions, as well as amounts placed in escrow for contingent payments resulting from acquisitions or other contractual arrangements.

Accounts Receivable and Unbilled, Net

Accounts receivable represent amounts due from the Company's customers who are concentrated primarily in the pharmaceutical, biotechnology, and medical device industries. Unbilled services represent revenue recognized to date that is currently not billable to the customer pursuant to contractual terms. In general, amounts become billable upon the achievement of negotiated contractual events or in accordance with predetermined payment schedules. Amounts classified to unbilled services are those billable to customers within one year from the respective balance sheet date.

The Company grants credit terms to its customers prior to signing a service contract and monitors the creditworthiness of its customers on an ongoing basis. The Company maintains an allowance for doubtful accounts based on specific identification of accounts receivable that are at risk of not being collected. Uncollectible accounts receivable are written off only after all reasonable collection efforts have been exhausted. Moreover, in some cases the Company requires advance payment from its customers for a portion of the study contract price upon the signing of a service contract. These advance payments are deferred and recognized as revenue as services are performed.

Inventory

Inventory, which consists primarily of laboratory supplies, is valued at the lower of cost or market. Inventory is stated at purchased cost using the first-in, first out (FIFO) cost method. The inventory balance is included in Prepaid expenses and other current assets in the consolidated balance sheets.

Property and Equipment

Property and equipment is recorded at cost. Depreciation is provided on the straight-line method at rates adequate to allocate the cost of the applicable assets over their estimated useful lives, which is three to five years for computer hardware, software, phone, and medical imaging equipment, five to seven years for furniture and fixtures and other equipment, and thirty to forty years for buildings. The Company capitalizes costs of computer software developed for internal use and amortizes these costs on a straight-line basis over the estimated useful life, not to exceed three years. Leasehold improvements are capitalized and amortized on a straight-line basis over the shorter of the estimated useful life of the improvement or the associated remaining lease term. Repairs and maintenance are expensed as incurred.

Leases

The Company enters into contracts to lease facilities and equipment to be used in its operations. At contract inception, the Company determines whether a contract contains a lease within the scope of Accounting Standard Codification Topic 842, *Leases* (ASC 842), and determines the appropriate classification of the lease as either operating or finance.

Contracts containing operating leases are recorded on the consolidated balance sheets within Operating lease right-of-use (ROU) assets, Other current liabilities, and Operating lease liabilities. Operating lease ROU assets and operating lease liabilities are recognized based on the present value of the future lease payments over the lease term as of the lease commencement date. In addition, operating ROU assets also include lease payments made and exclude lease incentives and initial direct costs incurred. Operating lease expense for lease payments is recognized on a straight-line basis over the lease term within Total direct costs and Selling, general, and administrative expenses. Variable lease costs are primarily related to adjustments for inflation, common area maintenance and property tax and are recognized within Total direct costs and Selling, general and administrative expenses.

Contracts containing finance leases are recognized initially in the same manner as Operating lease ROU assets and liabilities; however, they are recorded on the consolidated balance sheets within Property and equipment, net, Other current liabilities, and Other long-term liabilities. Finance lease assets are subsequently amortized on a straight line basis over the lease term within Depreciation expense, while the lease liability is accreted within Interest expense, net utilizing the discount rate determined at lease commencement and reduced by periodic lease payments over the lease term. Currently, the Company does not have any finance leases.

The discount rate utilized in determining the present value of future payments for both operating and finance leases, unless implicit in the lease contract, is determined based on the Company's collateralized incremental borrowing rate based on the information available at lease commencement.

Lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option as determined at lease commencement.

Many of our lease agreements have both lease and non-lease components, which the Company has elected to treat as a single lease component for recognition purposes.

The Company may enter into short-term leases (leases with a lease term of less than one year), which it has elected not to capitalize as assets and liabilities on the consolidated balance sheets, but instead recognizes lease payments within Total direct costs and Selling, general, and administrative expenses on a straight line basis over the lease term.

Goodwill and Intangible Assets

Goodwill

Goodwill represents the excess of purchase price over the fair value of net assets acquired in business combinations. The carrying value of goodwill is reviewed at least annually for impairment, or as indicators of potential impairment are identified, at the reporting unit level. The reporting units are Phase I-IV clinical research services and Laboratories as of December 31, 2023.

The Company performs its annual impairment tests during the fourth quarter each year, comparing the fair value of each of our reporting units with its carrying amount, inclusive of goodwill. A goodwill impairment charge would be recognized for the amount by which the carrying amount exceeds the reporting unit's fair value. Fair value is estimated using a combination of the income approach, a discounted cash flow analysis, and the market approach, utilizing the guideline company method. There was no indication of impairment related to goodwill based on the fourth quarter 2023 assessment.

Intangible Assets

The Company has an indefinite lived intangible asset related to its trade name. The carrying value of the trade name asset is reviewed at least annually for impairment, or as indicators of potential impairment are identified. The Company performs its annual impairment test in the fourth quarter each year in conjunction with its annual assessment of goodwill. The assessment consists of comparing the carrying value of the indefinite lived intangible asset to its estimated fair value, utilizing the relief from royalty method, an income approach valuation. There was no indication of impairment related to the trade name asset based on the fourth quarter 2023 assessment.

Finite-lived intangible assets consist mainly of the value assigned to customer relationships and developed technologies. Finite-lived intangible assets are amortized straight-line or using an accelerated method over their estimated useful lives of fifteen years.

Impairment of Long-Lived Assets

Long-lived assets, primarily property and equipment and finite-lived intangible assets, are reviewed for impairment and the reasonableness of the estimated useful lives whenever events or changes in circumstances indicate that the carrying amounts of the assets may not be recoverable or that a change in useful life may be appropriate. Recoverability for long-lived assets is determined by comparing the forecasted undiscounted cash flows of the operation to which the assets relate to the carrying amount of the assets. If the undiscounted cash flows are less than the carrying amount of the assets, then the Company reduces the carrying value of the assets to estimated fair values, which are primarily based upon forecasted discounted cash flows. Fair value of long-lived assets is determined based on a combination of discounted cash flows and market multiples. There was no indication of impairment related to long-lived assets based on the fourth quarter 2023 assessment.

Advanced Billings

Advanced billings represents cash received from customers, or billed amounts per an agreed upon payment schedule, in advance of services being performed or revenue being recognized.

Government Assistance

The Company receives government incentives from domestic and foreign governments. The incentives come in various arrangements, but consist primarily in the form of tax credits, economic development grants and property tax abatement credits.

Tax credits are available to the Company, in certain jurisdictions, for qualifying research and development spend as well as for certain employment related milestone agreements. These tax credits are recorded on a jurisdiction-by-jurisdiction basis upon the first instance of the credit being monetized. Upon achieving a history of monetization in a jurisdiction, income is typically estimated as the activities or contractual requirements defined in the applicable agreements occur. Depending on the jurisdiction laws and regulations, credits can be monetized immediately or up to 3 years after the credits have been submitted to the relevant taxing agencies.

The Company receives grants from certain jurisdictions for economic development projects, based on job growth, employee retention and capital investment commitments. These grant funds are reimbursed to the Company upon achieving certain milestones and recognized as eligible costs are incurred.

Property tax abatement credits are available to the Company in certain jurisdictions that reduce the cost of renting or owning real and business personal property. These credits are monetized through reductions to the real estate tax liability at the time payments are due and recognized as real estate taxes are incurred.

Government incentives are recorded in accordance with their purpose, net of fees incurred to monetize the benefit, as a reduction of expense within Direct service costs, excluding depreciation and amortization and Selling, general and administrative in the consolidated statements of operations. The Company recognized government assistance income, net of $15.5 million and $15.4 million during the years ended December 31, 2023 and 2022, respectively. Government assistance receivables are recorded in the consolidated balance sheets based on the expected timing of monetizing the benefit. Government assistance receivables recorded on the December 31, 2023 consolidated balance sheets are expected to be recovered through 2027. The Company recorded receivables related to government assistance programs at December 31, 2023 of $9.5 million in Prepaid expenses and other current assets and $12.2 million in Other assets, respectively. The Company recorded receivables related to government assistance programs at December 31, 2022 of $11.3 million in Prepaid expenses and other current assets and $7.1 million in Other assets, respectively.

Recently Adopted Accounting Standards

In November 2021, the FASB issued ASU 2021-10, "Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance" which requires entities to provide disclosures on material government assistance transactions for annual reporting periods. The disclosures include information around the nature of the assistance, the related accounting policies used to account for government assistance, the effect of government assistance on the entity's financial statements, and any significant terms and conditions of the agreements, including commitments and contingencies. The guidance is effective for annual periods beginning after December 15, 2021, with early adoption permitted. The Company adopted this standard on a prospective basis in the fourth quarter of 2022.

Recently Issued Accounting Pronouncements

In November 2023, the FASB issued ASU 2023-07, "Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures" which requires entities to enhance disclosures around segment reporting. The guidance is effective for annual periods beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024, with early adoption permitted. The Company is currently evaluating the effect this standard will have on its consolidated financial statements and related disclosures.

In December 2023, the FASB issued ASU 2023-09, "Income Taxes (Topic 740): Improvements to Income Tax Disclosures" which requires entities to enhance disclosures around income taxes. The guidance is effective for annual periods beginning after December 15, 2024, with early adoption permitted. The Company is currently evaluating the effect this standard will have on its consolidated financial statements and related disclosures.

3. CONTRACT ASSETS AND CONTRACT LIABILITIES

Contract assets and liabilities are reflected in the Company’s consolidated balance sheets within the accounts reflected below.

Contract Assets

Accounts receivable represent amounts due from the Company's customers who are concentrated primarily in the pharmaceutical, biotechnology, and medical device industries. Unbilled represents revenue recognized to date that has not been billed or is not yet contractually billable to the customer. In general, amounts become billable upon the achievement of negotiated contractual events, in accordance with predetermined payment schedules or when a reimbursable expense has been incurred. Amounts classified to unbilled are those billable to customers within one year from the respective balance sheet date.

Accounts receivable and unbilled, net consisted of the following at December 31 (in thousands):

	2023	2022
Accounts receivable	$ 275,932	$ 213,169
Unbilled receivables	22,475	40,405
Less: allowance for doubtful accounts	(7)	(170)
Total accounts receivable and unbilled, net	$ 298,400	$ 253,404

Contract Liabilities

Advanced billings represents cash received from customers, or billed amounts per an agreed upon payment schedule, in advance of services being performed or revenue being recognized. During the year ended December 31, 2023, the Company recognized approximately $396.3 million of revenue that was included in the Advanced billings balance at the beginning of the year.

Advanced billings consisted of the following at December 31 (in thousands):

	2023	2022
Advanced billings	$ 559,860	$ 462,729

A rollforward of allowance for doubtful account activity is as follows:

	Year Ended December 31,		
	2023	2022	2021
Allowance for doubtful accounts - beginning balance	$ (170)	$ (171)	$ (346)
Current year provision	(3,420)	—	(11)
Write-offs, recoveries and the effects of foreign currency exchange	3,583	1	186
Allowance for doubtful accounts - ending balance	$ (7)	$ (170)	$ (171)

4. PROPERTY AND EQUIPMENT, NET

Property and equipment, net consisted of the following at December 31, (in thousands):

	2023	2022
Land	$ 4,833	$ 2,410
Equipment	39,927	31,851
Furniture, fixtures, and leasehold improvements	99,581	87,543
Computer hardware, software, and phone equipment	32,051	26,049
Buildings	16,419	13,594
Construction-in-progress	7,182	10,518
Property and equipment at cost	199,993	171,965
Less: Accumulated depreciation	(79,404)	(62,116)
Property and equipment, net	$ 120,589	$ 109,849

Depreciation expense was $24.1 million, $19.0 million and $16.0 million for the years ended December 31, 2023, 2022 and 2021, respectively.

5. GOODWILL AND INTANGIBLE ASSETS

Goodwill

Total assets reflected on the balance sheet and not remeasured to fair value on a recurring basis, identified as Level 3 measurements, as of December 31, 2023 are $694.0 million, comprised of $662.4 million of goodwill and $31.6 million of identified indefinite-lived intangible assets. Accumulated goodwill impairment losses to date amounts to $9.3 million, all of which was recognized in the year ended December 31, 2015.

Intangible Assets, Net

Intangible assets, net consisted of the following at December 31 (in thousands):

	2023	2022
Intangible assets:		
Finite-lived intangible assets:		
Carrying amount:		
Customer relationships	145,051	145,051
Accumulated amortization:		
Customer relationships	(140,888)	(138,689)
Total finite-lived intangible assets, net	4,163	6,362
Trade name (indefinite-lived)	31,646	31,646
Total intangible assets, net	$ 35,809	$ 38,008

As of December 31, 2023, estimated amortization expense of the Company's intangible assets for each of the next five years is as follows (in thousands):

	Amortization
2024	$ 1,443
2025	946
2026	620
2027	577
2028	577
	$ 4,163

6. ACCRUED EXPENSES

Accrued expenses consisted of the following at December 31 (in thousands):

	2023	2022
Employee compensation and benefits	$ 75,822	$ 71,197
Project related reimbursable expenses	205,864	128,416
Other	11,275	10,512
Total accrued expenses	$ 292,961	$ 210,125

7. SHORT-TERM DEBT

Debt consisted of the following at December 31 (in thousands):

	2023	2022
Credit facility	$ —	$ 50,000
Short-term debt	$ —	$ 50,000

The estimated fair value of the Company's debt based on Level 2 inputs using the market approach, which is primarily based on rates at which the debt is traded among financial institutions, approximates the carrying value as of December 31, 2022.

On September 30, 2019 (the "Closing Date"), the Company obtained an unsecured credit facility in an aggregate principal amount up to $50.0 million (as amended from time to time, the "Credit Facility") through its wholly owned subsidiaries, Medpace, Inc., as borrower (the "Borrower"), and Medpace IntermediateCo, Inc., as guarantor (the "Guarantor").

On the Closing Date, the Borrower and lender entered into a Loan Agreement (as it may be amended from time to time, the "Loan Agreement") providing for the Credit Facility, and the Guarantor executed a Guaranty Agreement providing for its guarantee of the payment and performance of the obligations under the Loan Agreement. On March 15, 2022, the Company entered into Amendment No. 4 to the Loan Agreement, which increased the aggregate principal amount that may be borrowed under the facility's line of credit to up to $250.0 million. On March 31, 2023, the Company entered into Amendment No. 5 to the Loan Agreement, which changed the aggregate principal amount that may be borrowed under the facility's line of credit to up to $150.0 million, adjusted the interest rate and fee charged on the credit facility and extended the expiration date of resolving credit note to March 29, 2024. The Credit Facility bears interest at a rate of the sum of The Secured Overnight Financing Rate (SOFR) plus 125 basis points (1.25%) or the highest of the Prime Rate, the sum of the Overnight Bank Funding Rate plus 50 basis points (0.50%) and the sum of Daily Simple SOFR plus 100 basis points (1.00%).

The Loan Agreement contains other customary loan terms, representations and warranties, and affirmative and negative covenants, in each case, subject to customary limitations, exceptions and exclusions. The Loan Agreement contains certain events of default, including, among others, non-payment of principal or interest and breach of the covenants.

As of December 31, 2023, there were less than $0.1 million in letters of credit outstanding related to certain operating lease obligations, which are secured by the Credit Facility.

8. LEASES

The Company enters into leases for real estate and equipment. Real estate leases are for our corporate office space and laboratories around the world. Real estate leases have remaining lease terms of less than 1 year to 17 years.

Many of the Company's leases include options to extend the leases on a month to month basis or for set periods for up to 20 years. Many leases also include options to terminate the leases within 1 year or per other contractual terms.

The components of lease expense were as follows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Operating lease cost	$ 27,919	$ 25,874	$ 23,873
Variable lease cost	$ 9,455	$ 8,569	$ 6,627

Supplemental cash flow information related to the leases was as follows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Cash paid for amounts included in the measurement of lease liabilities:			
Operating cash flows from operating leases	$ 19,829	$ 17,002	$ 16,266
Right-of-use assets obtained in exchange for lease obligations:			
Operating leases	23,960	30,882	33,133

Supplemental balance sheet information related to the leases was as follows at December 31 (in thousands):

	2023	2022
Operating lease right-of-use assets - related parties	$ 83,065	$ 86,356
Operating lease right-of-use assets - non-related parties	61,736	52,712
Operating lease right-of-use assets	$ 144,801	$ 139,068
Other current liabilities - related parties	5,730	5,409
Other current liabilities - non-related parties	16,635	13,863
Other current liabilities	$ 22,365	$ 19,272
Operating lease liabilities - related parties	90,568	93,393
Operating lease liabilities - non-related parties	51,554	45,474
Operating lease liabilities	142,122	138,867
Total operating lease liabilities	$ 164,487	$ 158,139
Weighted Average Remaining Lease Term (years)		
Operating leases	10.0	11.1
Weighted Average Discount Rate		
Operating leases	5.6 %	5.2 %

Lease payments due related to lease liabilities as of December 31, 2023 were as follows (in thousands):

	Related Party Operating Leases	Non-Related Parties Operating Leases	Total Operating Leases
2024	$ 11,412	$ 18,671	$ 30,083
2025	11,607	17,008	28,615
2026	11,807	14,199	26,006
2027	10,839	10,974	21,813
2028	8,609	6,124	14,733
Later years	91,669	9,548	101,217
Total lease payments	145,943	76,524	222,467
Less: imputed interest	(49,645)	(8,335)	(57,980)
Total	$ 96,298	$ 68,189	$ 164,487

As of December 31, 2023, we have several additional leases with contractual obligations, which have not yet commenced, with future payments of $2.7 million.

9. SHAREHOLDERS' EQUITY

Stock-Based Compensation

2016 Incentive Award Plan

On August 11, 2016 in connection with the Company's IPO, the Board approved the 2016 Incentive Award Plan (the "2016 Plan"). The 2016 Plan provides for long-term equity incentive compensation for key employees, officers and non-employee directors. A variety of discretionary awards (collectively, the "Awards") for employees and non-employee directors are authorized under the 2016 Plan, including vested shares, stock options, stock appreciation rights (SARs), restricted stock awards (RSAs), restricted stock units (RSUs), or other cash based or stock dividend equivalent awards, which are all equity-classified instruments under the 2016 Plan. The number of shares registered and available for grant under the 2016 Plan is 6,000,000. The vesting of such awards may be conditioned upon either a specified period of time or the attainment of specific performance goals as determined by the administrator of the 2016 Plan. The option price and term are also subject to determination by the administrator with respect to each grant. Option prices are generally expected to be set at the market price of the Company's common stock at the date of grant and option terms are not expected to exceed ten years.

The Company granted 47,238 awards to employees under the 2016 Incentive Award Plan during the year ended December 31, 2023, consisting of 45,988 RSU and 1,250 stock option awards having four year vesting schedules. The Company granted an additional 848 RSU that vest in four approximately equal installments on March 31, 2024, June 30, 2024, September 30, 2024 and December 31, 2024, and 11,187 stock option awards to non-employee directors under the 2016 Incentive Award Plan, during the year ended December 31, 2023. These stock option awards will vest on the earlier of (a) the day immediately preceding the date of the first annual meeting following the date of grant and (b) the first anniversary of the date of grant, subject to the non-employee director continuing in service through the applicable vesting date.

The Company granted 405,550 awards to employees under the 2016 Incentive Award Plan during the year ended December 31, 2022, consisting of 164,478 RSU and 113,838 stock option awards having four year vesting schedules and 127,234 stock option awards having two year vesting schedules. The Company granted an additional 1,117 RSU that vest in four approximately equal installments on March 31, 2023, June 30, 2023, September 30, 2023 and December 31, 2023, and 11,418 stock option awards to non-employee directors under the 2016 Incentive Award Plan, during the year ended December 31, 2022. These stock option awards will vest on the earlier of (a) the day immediately preceding the date of the first annual meeting following the date of grant and (b) the first anniversary of the date of grant, subject to the non-employee director continuing in service through the applicable vesting date.

The Company granted 374,235 awards to employees under the 2016 Incentive Award Plan during the year ended December 31, 2021, consisting of 74,725 RSU and 205,086 stock option awards vesting after 4 years and six months, 27,854 RSU and 9,000 stock option awards vesting after four years, and 57,570 stock option awards vesting after two years. The Company granted an additional 10,932 stock option awards to non-employee directors under the 2016 Incentive Award Plan, during the year ended December 31, 2021. These awards will vest on the earlier of (a) the day immediately preceding the date of the first annual meeting following the date of grant and (b) the first anniversary of the date of grant, subject to the non-employee director continuing in service through the applicable vesting date.

The 2016 Plan expires in 2026, except for awards then outstanding, and is administered by the Board. All Awards granted at the IPO or thereafter were or will be issued under the 2016 Plan.

The Company satisfies stock option exercises and vested stock awards with treasury shares or newly issued shares. Shares available for future stock compensation grants under the 2016 Plan totaled 2.3 million at December 31, 2023 and 2022, respectively.

Equity Awards

Valuation Assumptions

The Company determines the fair value of stock options using the Black-Scholes-Merton option pricing model (the "BSM Model"). The BSM Model is primarily affected by the fair value of the Company's common stock (see restricted share valuation discussion below), the expected holding period for the option, expected stock price volatility over the term of the awards, the risk-free interest rate, and expected dividends.

The following table sets forth the key weighted-average assumptions used in the BSM Model to calculate the fair value of options:

	Year Ended December 31,		
	2023	2022	2021
Expected holding period - years	4.1	4.7	5.0
Expected volatility	45.4%	36.5%	34.3%
Risk-free interest rate	3.8%	1.9%	0.9%
Expected dividend yield	0.0%	0.0%	0.0%

The assumptions used in the table above reflect grant date inputs to arrive at the grant date fair values for stock options subject to equity-classified stock compensation accounting.

The expected holding period represents the period of time the grants are expected to be outstanding. The Company uses the simplified method, as prescribed by accounting guidance governing such awards, to calculate the expected holding period for options granted to employees as we do not have sufficient historical evidence data to provide a reasonable basis upon which to estimate the expected holding period. For options valued by the Company for the years ended December 31, 2023, 2022 and 2021, respectively, the expected holding period is based on an average between the midpoint of the vesting date and the expiration date of the options.

Due to the lack of Company specific historical and implied volatility data, our estimate of expected volatility is based upon a blended approach that utilizes the historical volatility of the Company's common stock for periods in which the Company has sufficient information and the historical volatility of a group of peer companies that are most representative of our company.

The risk-free interest rate is based on the yield on U.S. Treasury obligations with remaining durations equal to the expected holding period of the options. The expected dividend yield is assumed to be zero based on recent and anticipated dividend activity.

The fair value of restricted shares is based upon the market price of the Company’s common stock on the date of grant as listed on the NASDAQ.

The following table summarizes the grant date fair values of stock options and restricted shares issued during the period as well as the allocation of stock-based compensation expense to Total direct costs, and Selling, general and administrative reported in the consolidated statements of operations:

	Year Ended December 31,		
	2023	2022	2021
Weighted average, grant date fair value			
Stock options	$ 85.30	$ 47.57	$ 52.70
Restricted shares (RSAs and RSUs)	$ 225.69	$ 149.87	$ 174.94
Stock-based compensation expense allocated to:			
Total direct costs	$ 11,099	$ 11,801	$ 9,345
Selling, general, and administrative	9,417	9,611	5,124
Total stock-based compensation expense	$ 20,516	$ 21,412	$ 14,469

Award Activity

The following table sets forth the Company's stock option activity:

	Year Ended December 31,					
	2023		2022		2021	
	Options	Weighted Average Exercise Price	Options	Weighted Average Exercise Price	Options	Weighted Average Exercise Price
Outstanding - beginning of Period	1,629,148	$ 89.71	1,992,915	$ 68.39	2,500,727	$ 43.26
Granted	12,437	$ 211.25	252,490	$ 138.91	282,588	$ 168.34
Exercised	(287,048)	$ 39.64	(579,407)	$ 38.10	(745,572)	$ 23.67
Cancelled/Forfeited/Expired	(11,250)	$ 183.04	(36,850)	$ 85.40	(44,828)	$ 40.50
Outstanding - end of period	1,343,287	$ 100.75	1,629,148	$ 89.71	1,992,915	$ 68.39
Exercisable - end of period	901,865	$ 74.79	1,116,255	$ 60.52	1,290,627	$ 56.43

The following table sets forth the Company's Restricted Share activity:

	Year Ended December 31,		
	2023	2022	2021
	Shares/Units	Shares/Units	Shares/Units
Outstanding and unvested - beginning of period	523,377	602,187	695,562
Granted	46,836	165,595	102,579
Vested	(154,618)	(197,000)	(119,000)
Forfeited	(24,597)	(47,405)	(76,954)
Outstanding and unvested - end of period	390,998	523,377	602,187

The following table summarizes information about stock options expected to vest, stock options exercisable, and unvested restricted share awards expected to vest at December 31, 2023:

	Weighted Average Exercise Price	Stock Options	Restricted Shares/Units	Weighted Average Remaining Life (Years)
Number of stock options expected to vest	$ 100.75	1,343,287	—	2.7
Number of restricted shares/units expected to vest			390,998	
Total expected to vest		1,343,287	390,998	
Total stock options exercisable	$ 74.79	901,865	—	2.1
Unrecognized compensation cost (in thousands)		$ 7,727	$ 27,058	
Weighted average years over which unrecognized compensation cost will be recognized		1.8	2.5	

The following table sets forth the aggregate intrinsic value of stock options exercised, the fair values of awards vested, and share based liabilities settled during the respective periods (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Total intrinsic value of stock options exercised	$ 56,548	$ 77,527	$ 104,695
Total grant-date fair value of stock options vested	$ 3,591	$ 5,228	$ 5,185
Total grant-date fair value of restricted shares vested	$ 9,306	$ 9,248	$ 3,796
Total settlement date fair value of restricted shares vested	$ 31,842	$ 32,802	$ 22,321

The actual tax benefits recognized related to stock-based compensation totaled $18.9 million, $23.2 million and $20.9 million for the years ended December 31, 2023, 2022 and 2021, respectively.

10. EMPLOYEE BENEFIT PLANS

The Company provides a 401(k) plan that covers substantially all U.S. employees. Participants can elect to contribute up to 50% of their eligible earnings on a pre-tax basis, subject to Internal Revenue Service annual limitations.

The U.S.-based plan offers a year-end employer matching contribution, requiring the participant to be an employee at year-end to qualify for the match. Participants with one year or more of service are eligible for the matching contribution. Participants fully vest in the employer contributions after three years of service. The employer contribution represents a percentage of a participant's eligible compensation. The Company's 401(k) Plan costs were $7.4 million, $5.4 million and $4.3 million during the years ended December 31, 2023, 2022 and 2021, respectively, and were allocated between Total direct costs, and Selling, general and administrative in the consolidated statements of operations.

The Company has various defined contribution arrangements for eligible employees of non-U.S. entities. These defined contribution arrangements provide employees with retirement savings and life insurance benefits. The Company incurred expenses related to these arrangements of $3.3 million, $2.5 million and $1.9 million in the years ended December 31, 2023, 2022 and 2021, respectively, and were allocated between Total direct costs, and Selling, general and administrative in the consolidated statements of operations.

The Company is also required to pay certain minimum statutory post-employment benefits. The Company recognizes a liability and the associated expense for these benefits when it is probable that employees are entitled to the benefit.

11. INCOME TAXES

The Company files income tax returns for U.S. federal and various U.S. states, as well as various foreign jurisdictions. The liabilities for unrecognized tax benefits are carried in Other long-term liabilities on the consolidated balance sheets because the payment of cash is not anticipated within one year of the balance sheet date.

The components of income before income taxes consisted of the following (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Domestic	$ 312,870	$ 260,564	$ 187,535
Foreign jurisdictions	22,812	22,296	14,317
Income before income taxes	$ 335,682	$ 282,860	$ 201,852

Income tax provision consisted of the following (in thousands):

	Current	Deferred	Total
Year ended December 31, 2023			
U.S. Federal	$ 64,381	$ (24,117)	$ 40,264
U.S. state and local	8,848	(1,869)	6,979
Foreign jurisdictions	4,622	1,007	5,629
	$ 77,851	$ (24,979)	$ 52,872
Year ended December 31, 2022			
U.S. Federal	$ 49,991	$ (19,705)	$ 30,286
U.S. state and local	7,160	(3,297)	3,863
Foreign jurisdictions	3,330	13	3,343
	$ 60,481	$ (22,989)	$ 37,492
Year ended December 31, 2021			
U.S. Federal	$ 46,138	$ (32,677)	$ 13,461
U.S. state and local	8,405	(3,622)	4,783
Foreign jurisdictions	2,580	(820)	1,760
	$ 57,123	$ (37,119)	$ 20,004

The difference between the statutory rate for federal income tax and the effective income tax rate was as follows (in thousands):

	Year Ended December 31,					
	2023		2022		2021	
Income tax expense calculated at the federal statutory rate	$ 70,493	21.0 %	$ 59,401	21.0 %	$ 42,389	21.0 %
Effect of:						
State and local taxes, net of federal benefit	5,146	1.5	4,235	1.5	3,698	1.8
Tax on foreign earnings, net of tax credits and deductions	(1,305)	(0.4)	(3,277)	(1.2)	(3,113)	(1.5)
Deferred credit	(596)	(0.2)	(621)	(0.2)	(667)	(0.3)
Permanent items:						
Stock-based awards	(14,692)	(4.4)	(18,738)	(6.6)	(19,042)	(9.5)
Deduction for FDII	(9,358)	(2.8)	(4,983)	(1.8)	(4,860)	(2.4)
Other	63	—	595	0.2	(364)	(0.2)
State/Local tax credits	(2,536)	(0.8)	(1,294)	(0.5)	(976)	(0.5)
Change in liability for uncertain tax positions	4,784	1.4	1,560	0.6	2,349	1.2
Other	873	0.5	614	0.3	590	0.3
	$ 52,872	15.8 %	$ 37,492	13.3 %	$ 20,004	9.9 %

As of December 31, 2023, the Company's accounting position is that unremitted foreign earnings are indefinitely reinvested. Therefore, the Company has not recorded deferred foreign withholding taxes on the unremitted foreign earnings and it is not practicable to determine the amount of the additional taxes that would result if these earnings were repatriated. The undistributed earnings of foreign subsidiaries was approximately $59.2 million for the year ended December 31, 2023.

Components of the Company's net deferred tax asset (liability) included in the consolidated balance sheets consisted of the following at December 31 (in thousands):

	2023	2022
Deferred tax assets:		
Accrued liabilities	$ 27,101	$ 24,483
Depreciation and amortization	1,258	1,269
Foreign operating loss carryforward	35	30
Advanced billings	98,438	67,789
Other	2,474	1,005
Valuation allowance	(1,826)	(430)
Total deferred tax assets	127,480	94,146
Deferred tax liabilities:		
Depreciation and amortization	(52,443)	(44,731)
Prepaid expenses	(1,581)	(1,263)
Other	(1,425)	(1,139)
Total deferred tax liabilities	(55,449)	(47,133)
Net deferred tax asset (liability)	$ 72,031	$ 47,013

The Company has foreign operating loss carryforwards for which a deferred tax asset of less than $0.1 million has been established as of December 31, 2023. The Company does not have a valuation allowance against this deferred tax asset as of December 31, 2023 based upon its assessment that it is more likely than not that this amount will be realized. The ultimate realization of this tax benefit is dependent upon the generation of sufficient operating income in the respective tax jurisdictions. The foreign net operating loss carryforwards will expire in 2027 and 2028 if not utilized.

Annual activity related to the Company's valuation allowance is as follows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Beginning Balance	$ 430	$ 850	$ 578
Additions charged to expense	1,582	15	305
Reductions from utilization, reassessments and expirations	(186)	(493)	(33)
Remeasurement due to effect of tax reform	—	58	—
Ending Balance	$ 1,826	$ 430	$ 850

A reconciliation of the beginning and ending balances of the total amounts of gross unrecognized tax benefits is as follows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Beginning Balance	$ 15,947	$ 13,784	$ 10,691
Increases in tax positions for prior years	—	171	1,253
Decreases in tax positions for prior years	(97)	(490)	(223)
Increases in tax positions for current year	5,382	4,871	3,098
Lapse in statute of limitations	(852)	(2,389)	(1,035)
Ending Balance	$ 20,380	$ 15,947	$ 13,784

Interest and penalties associated with uncertain tax positions are recognized as components of Income tax provision in the consolidated statements of operations. There was no material change to tax-related interest and penalties during the years ended December 31, 2023, 2022 and 2021. As of December 31, 2023 and 2022, respectively, the Company has a liability for interest and penalties of $5.2 million and $3.8 million that is associated with related tax liabilities of $16.2 million and $12.7 million for uncertain tax positions.

The Company operates in various foreign, state and local jurisdictions. The number of tax years for which the statute of limitations remains open for foreign, state and local jurisdictions varies by jurisdiction and is approximately four years (2019 through 2023). For federal tax purposes, the Company's open tax years are 2020 through 2023.

12. COMMITMENTS, CONTINGENCIES, AND GUARANTEES

Legal Proceedings

Medpace periodically becomes involved in various claims and lawsuits that are incidental to its business. Management believes, after consultation with counsel, that no matters currently pending would, in the event of an adverse outcome, have a material impact on the Company's consolidated balance sheets, statements of operations, or cash flows for the years ended December 31, 2023, 2022 and 2021.

Purchase Commitments

The Company has several minimum purchase commitments for project related supplies totaling $17.2 million as of December 31, 2023. In return for the commitment, Medpace receives preferential pricing. The commitments expire at various times through 2029.

13. MISCELLANEOUS (EXPENSE) INCOME, NET

Miscellaneous (expense) income, net consisted of the following (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Net (loss) gain on foreign-currency transactions	$ (1,929)	$ 3,859	$ 2,779
Other income	1,274	3,209	563
Miscellaneous (expense) income, net	$ (655)	$ 7,068	$ 3,342

14. RELATED PARTY TRANSACTIONS

Employee Loans

The Company periodically extends short term loans or advances to employees, typically upon commencement of employment. Total receivables as a result of these employee advances of $0.3 million existed at December 31, 2023 and 2022, respectively, and are included in the Prepaid expenses and other current assets and Other assets line items of the consolidated balance sheets, respectively, depending on the contractual repayment date.

Service Agreements

LIB Therapeutics LLC and subsidiaries ("LIB")

Certain executives and employees of the Company, including the chief executive officer, are members of LIB's board of managers and/or have equity investments in LIB. The Company entered into a MSA dated November 24, 2015 with LIB, a company that engages in research, development, marketing and commercialization of pharmaceutical drugs. Subsequently, the Company and LIB have entered into several task orders for the Company to perform clinical trial related services. The Company recognized total revenue from LIB of $43.7 million, $40.5 million and $11.8 million during the years ended December 31, 2023, 2022 and 2021, respectively, in the Company's consolidated statement of operations. As of December 31, 2023 and 2022, the Company had, from LIB, Advanced billings of $7.6 million and $7.4 million in the consolidated balance sheets, respectively. In addition, the Company had Accounts receivable and unbilled, net from LIB of $0.5 million and $5.5 million in the consolidated balance sheets at December 31, 2023 and 2022, respectively. The Company had Other current liabilities with LIB of $12.5 million in the consolidated balance sheets at December 31, 2022.

CinRX Pharma, subsidiaries and affiliates ("CinRx")

Certain executives and employees of the Company, including the chief executive officer, are members of CinRx's board of managers and/or have equity investments in CinRx, a biotech company. The Company and CinRx have entered into several task orders for the Company to perform clinical trial related services. During the years ended December 31, 2023, 2022 and 2021, the Company recognized total revenue from CinRx of $15.8 million, $15.0 million and $22.7 million in the Company's consolidated statements of operations, respectively. As of December 31, 2023 and 2022, the Company had Advanced billings from CinRx of $2.5 million and $1.4 million in the consolidated balance sheets, respectively. As of December 31, 2023 and 2022 the Company had Accounts receivable and unbilled, net from CinRx of $1.9 million and $2.2 million in the consolidated balance sheets, respectively. The Company had Prepaid expenses and other current assets with CinRX of $0.2 million in the consolidated balance sheets at December 31, 2023. Certain affiliates of CinRx included in previous reported quarters are no longer disclosed due to changes in the affiliate relationship.

The Summit Hotel ("The Summit")

The Summit Hotel, located on the Medpace campus, is owned by the chief executive officer. Medpace incurs travel lodging and meeting expenses at The Summit. During the years ended December 31, 2023, 2022 and 2021, Medpace incurred expenses of $0.4 million, $0.3 million and $0.3 million at The Summit, respectively.

Leased Real Estate

Campus Headquarters Leases

The Company entered into an operating lease for the occupancy of office space in a building in Cincinnati, Ohio with an entity that is wholly owned by the chief executive officer of the Company. The Company has evaluated its relationship with the related party and concluded that the related party is not a variable interest entity because the Company has no direct ownership interest or relationship other than the leases. The lease was renewed in the first quarter of fiscal year 2023 for a term of ten years through December 2032 with a renewal option for one 10-year term at prevailing market rates. The Company pays rent, taxes, insurance, and maintenance expenses that arise from the use of the properties. Annual base rent for the corporate headquarters allows for adjustments to the rental rate annually for increases in the consumer price index. The Company has determined that the lease is an operating lease. Operating lease cost recognized for the years ended December 31, 2023, 2022 and 2021 was $2.6 million, $2.3 million and 2.1 million, respectively, and was allocated between Total direct costs, and Selling, general and administrative in the consolidated statements of operations. The Operating lease right-of-use assets at December 31, 2023 and 2022 were $19.3 million and $18.2 million in the consolidated balance sheets, respectively. The current and long-term portions of the lease liabilities at December 31, 2023 were $1.5 million and $18.1 million, respectively, and were recognized in Other current liabilities and Operating lease liabilities in the consolidated balance sheets. The current and long-term portions of the lease liabilities at December 31, 2022 were $1.5 million and $16.7 million, respectively, and were recognized in Other current liabilities and Operating lease liabilities in the consolidated balance sheets.

In 2018, Medpace, Inc. entered into a multi-year lease agreement governing future occupancy of additional office space in Cincinnati, Ohio with an entity that is wholly owned by the Company's chief executive officer and certain members of his immediate family. The Company began to occupy the premises in the second quarter of fiscal year 2020. The lease expires in 2040 and the Company has two 10-year options to extend the term of the lease. The Company pays rent, taxes,

insurance, and maintenance expenses that arise from the use of the property. Annual base rent for the corporate headquarters allows for adjustments to the rental rate annually for increases in the consumer price index. The Company has determined that the lease is an operating lease. Operating lease cost recognized for the years ended December 31, 2023, 2022 and 2021 was $5.7 million, respectively. The operating lease cost was allocated between Total direct costs and Selling, general and administrative in the consolidated statements of operations. The Operating lease right-of-use assets at December 31, 2023 and 2022 were $51.9 million and $53.5 million in the consolidated balance sheets, respectively. The current and long-term portions of the lease liabilities at December 31, 2023 were $1.3 million and $63.5 million, respectively. The current and long-term portions of the lease liabilities at December 31, 2022 were $1.1 million and $64.8 million, respectively and were recognized in Other current liabilities and Operating lease liabilities in the consolidated balance sheets.

The Company entered into two multi-year lease agreements governing the occupancy of space of two buildings in Cincinnati, Ohio with an entity that is wholly owned by the Company's chief executive officer and certain members of his immediate family. The Company assumed occupancy in 2012 and the leases expire in 2027 with the Company having one 10-year option to extend the lease term. The Company pays rent, taxes, insurance, and maintenance expenses that arise from the use of the property. Annual base rent for the corporate headquarters allows for adjustments to the rental rate annually for increases in the consumer price index. The Company has determined that the leases are operating leases. Operating lease cost recognized for the years ended December 31, 2023, 2022 and 2021 was $3.6 million, respectively. The lease cost was allocated between Total direct costs and Selling, general and administrative in the consolidated statements of operations. The Operating lease right-of-use assets at December 31, 2023 and 2022 were $11.9 million and $14.6 million, respectively, in the consolidated balance sheets. The current and long-term portions of the lease liabilities at December 31, 2023 were $3.0 million and $8.9 million, respectively, and were recognized in Other current liabilities and Operating lease liabilities in the consolidated balance sheets. The current and long-term portions of the lease liabilities at December 31, 2022 were $2.8 million and $11.9 million, respectively, and were recognized in Other current liabilities and Operating lease liabilities in the consolidated balance sheets.

Travel Services

The Company incurs expenses for travel services for company executives provided by private aviation charter companies which is a company controlled by the chief executive officer of the Company (each a "private aviation charter"). The Company may contract directly with the private aviation charter for the use of its aircraft or indirectly through a third party aircraft management and jet charter company (the "Aircraft Management Company"). The travel services provided are primarily for business purposes, with certain personal travel paid for as part of the executives' compensation arrangements. The Aircraft Management Company also makes the private aviation charter aircraft available to third parties. The Company incurred travel expenses of $2.0 million, $2.3 million and $1.3 million during the years ended December 31, 2023, 2022 and 2021, respectively. These travel expenses are recorded in Selling, general and administrative in the Company's consolidated statements of operations. As of December 31, 2023 and 2022, the Company had Accounts payable to the Aircraft Management Company of $0.4 million and $0.3 million, respectively, in the consolidated balance sheets.

15. ENTITY WIDE DISCLOSURES

Operations By Geographic Location

The Company conducts operations in North America, Europe, Asia, South America, Africa and Australia through wholly-owned subsidiaries and representative sales offices. The Company attributes revenue to geographical locations based upon the location of the contracting entity. For the years ended December 31, 2023, 2022 and 2021, total revenue attributable to the U.S. represented approximately 98%, 98% and 97%, respectively, of total consolidated total revenue.

The following table summarizes property and equipment, net by geographic region and is further broken down to show countries which account for 10% or more of total as of December 31, if any (in thousands):

	2023	2022
Property and equipment, net:		
United States	$ 77,850	$ 81,217
Europe		
Belgium	18,190	11,778
Other	8,772	9,294
Total Europe	26,962	21,072
Asia-Pacific	14,472	6,223
Other	1,305	1,337
Total property and equipment, net	$ 120,589	$ 109,849

Revenue by Category

The following table disaggregates the Company's revenue by major source (in thousands):

	Years Ended December 31,		
	2023	2022	2021
Therapeutic Area			
Oncology	$ 587,097	$ 467,796	$ 362,846
Other	404,844	296,914	267,415
Metabolic	376,842	244,682	159,900
Cardiology	193,690	174,634	119,692
AVAI	163,312	118,031	110,976
Central Nervous System	160,057	157,939	121,548
Total revenue	$ 1,885,842	$ 1,459,996	$ 1,142,377

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Limitations on Effectiveness of Controls and Procedures

In designing and evaluating our disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our chief executive officer and chief financial officer, evaluated, as of the end of the period covered by this Annual Report on Form 10-K, the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")). Based on that evaluation, our chief executive officer and chief financial officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this report.

Management's Annual Report on Internal Control Over Financial Reporting

Our management's report on internal control over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act), and the related report of our independent registered public accounting firm are set forth in Part II, Item 8 of this Annual Report on Form 10-K and are incorporated herein by reference.

Changes in Internal Control over Financial Reporting

In the ordinary course of business, we routinely enhance our information systems by either upgrading current systems or implementing new ones. During the year ended December 31, 2023, we upgraded our accounting enterprise resource planning ("ERP") platform from an on-premises system to a cloud-based version. The implementation of that ERP system is expected to, among other things, improve user access security and improve a number of accounting, operational, and reporting processes and activities. Other than this upgrade, there were no changes in our internal control over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the year ended December 31, 2023 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

During the three months ended December 31, 2023, no director or officer of the Company adopted or terminated a "Rule 10b5-1 trading arrangement" or "non-Rule 10b5-1 trading arrangement," as each term is defined in Item 408(a) of Regulation S-K, except as described in the table below:

			Trading Arrangement			
	Action	**Date**	**Rule 10b5-1***	**Non-Rule 10b5-1****	**Total Shares to be Purchased or Sold**	**Duration/Expiration Date**
Medpace Investors, LLC [1]	Adopt	November 14, 2023 [2]		X	Up to 25,000 shares to be sold	Good until cancelled
Medpace Investors, LLC [1]	Adopt	November 15, 2023 [3]		X	Up to 50,000 shares to be sold	Good until cancelled
Medpace Investors, LLC [1]	Adopt	November 17, 2023 [4]		X	Up to 50,000 shares to be sold	Good until cancelled
Medpace Investors, LLC [1]	Adopt	November 20, 2023 [5]		X	Up to 50,000 shares to be sold	Good until cancelled
Medpace Investors, LLC [1]	Adopt	November 21, 2023 [6]		X	Up to 50,000 shares to be sold	Good until cancelled
Medpace Investors, LLC [1]	Adopt	November 27, 2023 [7]		X	Up to 50,000 shares to be sold	Good until cancelled
Medpace Investors, LLC [1]	Adopt	November 29, 2023 [8]		X	Up to 50,000 shares to be sold	Good until cancelled
Susan E. Burwig, Executive Vice President, Operations	Adopt	December 14, 2023 [9]		X	Up to 12,400 shares to be sold	The earlier of until cancelled or 180 days from the placement of the limit order

* Intended to satisfy the affirmative defense of Rule 10b5-1(c).

** Not intended to satisfy the affirmative defense of Rule 10b5-1(c).

[1] August J. Troendle, Chief Executive Officer and Chairman of the Board of the Company, is the sole manager and controlling unit holder of Medpace Investors, LLC ("MPI") and has sole voting and investment control with respect to the

securities held by MPI. Mr. Troendle may be deemed to indirectly beneficially own the securities of the Company held by MPI but disclaims beneficial ownership of such securities except to the extent of his pecuniary interest therein.

[2] On November 14, 2023, MPI placed a limit order to sell up to 25,000 shares that were previously acquired through open market purchases.

[3] On November 15, 2023, MPI placed a limit order to sell up to 50,000 shares that were previously acquired through open market purchases.

[4] On November 17, 2023, MPI placed a limit order to sell up to 50,000 shares that were previously acquired through open market purchases.

[5] On November 20, 2023, MPI placed a limit order to sell up to 50,000 shares that were previously acquired through open market purchases.

[6] On November 21, 2023, MPI placed a limit order to sell up to 50,000 shares that were previously acquired through open market purchases.

[7] On November 27, 2023, MPI placed a limit order to sell up to 50,000 shares that were previously acquired through open market purchases.

[8] On November 29, 2023, MPI placed a limit order to sell up to 50,000 shares that were previously acquired through open market purchases.

[9] On December 14, 2023, Ms. Burwig placed a limit order to sell up to 12,400 shares that were previously acquired through an exercise of stock options.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

The information required by this item with respect to the Company's Directors is contained in our definitive proxy statement (the "Proxy Statement") for our 2024 Annual Meeting of Stockholders under the heading "Proposal 1: Election of Directors" and is incorporated herein by reference.

The information required by this item with respect to the Company's Executive Officers is contained in the Proxy Statement under the heading "Named Executive Officers" and is incorporated herein by reference.

The information required by this item with respect to compliance with Section 16(a) of the Exchange Act is contained in the Proxy Statement under the heading "Delinquent Section 16(a) Reports" and is incorporated herein by reference.

The information required by this item with respect to the Company's code of ethics that applies to directors, officers, and employees, including the Company's principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, is contained in the Proxy Statement under the heading "Corporate Governance—Code of Ethics" and is incorporated herein by reference.

The information required by this item with respect to the procedures by which security holders may recommend nominees to the Board is contained in the Proxy Statement under the heading "Stockholders' Proposals" and is incorporated herein by reference.

The information required by this item with respect to the Company's Audit Committee, including the Audit Committee's members and its financial experts, is contained in the Proxy Statement under the heading "Committees of the Board—Audit Committee" and is incorporated herein by reference.

Item 11. Executive Compensation

The information required by this item with respect to executive compensation and director compensation is contained in the Proxy Statement under the headings "Executive Compensation" and "Director Compensation" and is incorporated herein by reference.

The information required by this item with respect to compensation committee interlocks and insider participation is contained in the Proxy Statement under the heading "Compensation Committee Interlocks and Insider Participation" and is incorporated herein by reference.

The compensation committee report required by this item is contained in the Proxy Statement under the heading "Executive Compensation—Compensation Committee Report" and is incorporated herein by reference.

The information required by this item with respect to compensation policies and practices as they relate to the Company's risk management is contained in the Proxy Statement under the heading "Executive Compensation—Compensation Risk Assessment" 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 with respect to securities authorized for issuance under the Company's equity compensation plans is contained in the Proxy Statement under the heading "Equity Compensation Plan Information" and is incorporated herein by reference.

The information required by this item with respect to the security ownership of certain beneficial owners and management is contained in the Proxy Statement under the heading "Security Ownership of Certain Beneficial Owners and Management" and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item with respect to certain relationships and transactions with related parties is contained in the Proxy Statement under the heading "Certain Relationships" and is incorporated herein by reference.

The information required by this item with respect to director independence is contained in the Proxy Statement under the heading “Corporate Governance—Director Independence” and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

The information required by this item with respect to audit fees, tax fees, and the audit committee’s pre-approval policies and procedures are contained in the Proxy Statement under the heading “Independent Registered Public Accounting Firm Fees and Other Matters” and is incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(1) Financial Statements

The following financial statements and supplementary data are included in Item 8 of this annual report:

(2) Financial Statement Schedules

The information required to be submitted in the Financial Statement Schedules for Medpace Holdings, Inc. and subsidiaries has either been shown in the financial statements or notes, or is not applicable or required under Regulation S-X; therefore, those schedules have been omitted.

(3) Exhibits

The exhibits listed in the accompanying Exhibit Index following the signature page are filed or furnished as a part of this report and are incorporated herein by reference.

Item 16. Form 10-K Summary

None.

EXHIBIT INDEX

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed/ Furnished Herewith
		Form	File No.	Exhibit	Filing Date	
3.1	Amended and Restated Certificate of Incorporation of Medpace Holdings, Inc.	8-K	001-37856	3.1	8/16/16	
3.2	Amended and Restated Bylaws of Medpace Holdings, Inc.	8-K	001-37856	3.2	8/16/16	
4.1	Specimen Stock Certificate evidencing shares of common stock	S-1/A	333-212236	4.1	7/26/16	
4.2	Description of Securities	10-K	001-37856	4.3	2/25/20	
#10.1	Medpace Holdings, Inc. 2016 Incentive Award Plan	10-Q	001-37856	10.1	11/3/16	
#10.2	Medpace Holdings, Inc. 2016 Senior Executive Incentive Bonus Plan	10-Q	001-37856	10.2	11/3/16	
10.3	Registration Rights Agreement	10-Q	001-37856	10.3	11/3/16	
#10.4	Form of Medpace Holdings, Inc. 2016 Incentive Award Plan Restricted Stock Award Grant Notice	S-1/A	333-212236	10.13	8/1/16	
#10.5	Form of Medpace Holdings, Inc. 2016 Incentive Award Plan Stock Option Grant Notice and Stock Option Agreement	S-1/A	333-212236	10.14	8/1/16	
#10.6	Form of Medpace Holdings, Inc. 2016 Incentive Award Plan Restricted Stock Unit Award Grant Notice.	S-1/A	333-212236	10.15	8/1/16	
#10.7	Medpace Holdings, Inc. 2016 Incentive Award Plan Sub-Plan for UK Participants	S-1/A	333-212236	10.16	8/1/16	
#10.8	Amended and Restated Employment Agreement, by and between Medpace Holdings, Inc. and August J. Troendle	S-1/A	333-212236	10.18	7/26/16	
#10.9	Medpace Holdings, Inc. 2016 Incentive Award Plan UK Company Share Option Plan (CSOP) Sub-Plan	S-1/A	333-212236	10.19	8/1/16	
#10.10	Medpace Holdings, Inc. Non-Employee Director Compensation Policy revised October 21, 2022	10-K	001-37856	10.10	2/14/23	
10.11	Loan Agreement dated as of September 30, 2019, by and among Medpace, Inc., as borrower, and PNC Bank, National Association.	8-K	001-37856	10.1	10/1/19	
10.12	Amendment No. 1 dated March 30, 2020 to Loan Agreement dated as of September 30, 2019, by and among Medpace, Inc., as borrower, and PNC Bank, National Association	8-K	001-37856	10.1	4/1/20	
10.13	Form of Indemnification Agreement	10-K	001-37856	10.13	2/16/21	
10.14	Amendment No. 2 dated March 29, 2021 to Loan Agreement dated as of September 30, 2019, by and among Medpace, Inc., as borrower, and PNC Bank, National Association	8-K	001-37856	10.1	3/30/21	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed/ Furnished Herewith
		Form	File No.	Exhibit	Filing Date	
10.15	Amendment No. 3 dated December 27, 2021 to Loan Agreement dated as of September 30, 2019, by and among Medpace, Inc., as borrower, and PNC Bank, National Association	8-K	001-37856	10.1	12/29/21	
10.16	Amendment No. 4 dated March 15, 2022 to Loan Documents	8-K	001-37856	10.1	3/16/22	
10.17	Amendment No. 5 dated March 31, 2023 to Loan Documents	8-K	001-37856	10.1	3/31/23	
19.1	Insider Trading Compliance Policy					*
21.1	List of Subsidiaries of Medpace Holdings, Inc.					*
23.1	Consent of Deloitte & Touche LLP, Independent Registered Public Accounting Firm					*
31.1	Rule 13a-14(a) / 15d-14(a) Certification of Chief Executive Officer					*
31.2	Rule 13a-14(a) / 15d-14(a) Certification of Chief Financial Officer					*
32.1	Section 1350 Certification of Chief Executive Officer					**
32.2	Section 1350 Certification of Chief Financial Officer					**
97.1	Incentive Compensation Recoupment Policy					*
101.INS	Inline 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					*
101.SCH	Inline XBRL Taxonomy Extension Schema Document					*
101.CAL	Inline XBRL Taxonomy Calculation Linkbase Document					*
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document					*
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document					*
101.PRE	Inline XBRL Taxonomy Extension Presentation					*
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)					

* Filed herewith.

** Furnished herewith.

# Indicates management contract or compensatory plan.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

MEDPACE HOLDINGS, INC.

By: /s/ KEVIN M. BRADY
Name: Kevin M. Brady
Title: Chief Financial Officer

Date: February 13, 2024

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENT that the undersigned officers and directors of Medpace Holdings, Inc. do hereby constitute and appoint August J. Troendle and Kevin M. Brady, and each of them, as his or her true and lawful attorneys-in-fact and agents, 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 that all said attorneys-in-fact and agents, or any of them or their or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Capacity	Date
/s/ AUGUST J. TROENDLE August J. Troendle	Chief Executive Officer and Chairman of the Board of Directors (Principal Executive Officer)	February 13, 2024
/s/ KEVIN M. BRADY Kevin M. Brady	Chief Financial Officer (Principal Financial and Accounting Officer)	February 13, 2024
/s/ BRIAN T. CARLEY Brian T. Carley	Director	February 13, 2024
/s/ ROBERT O. KRAFT Robert O. Kraft	Director	February 13, 2024
/s/ FRED B. DAVENPORT JR. Fred B. Davenport Jr.	Director	February 13, 2024
/s/ CORNELIUS P. MCCARTHY III Cornelius P. McCarthy III	Director	February 13, 2024
/s/ ASHLEY M. KEATING Ashley M. Keating	Director	February 13, 2024
/s/ DR. FEMIDA H. GWADRY-SRIDHAR Dr. Femida H. Gwadry-Sridhar	Director	February 13, 2024

Exhibit 31.1

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, August J. Troendle, certify that:

1. I have reviewed this Annual Report on Form 10-K of Medpace Holdings, 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 13, 2024

By: /s/ August J. Troendle

August J. Troendle

Chief Executive Officer and Chairman of the Board of Directors
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Kevin M. Brady, certify that:

1. I have reviewed this Annual Report on Form 10-K of Medpace Holdings, 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 13, 2024

By: /s/ Kevin M. Brady

Kevin M. Brady

Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of Medpace Holdings, Inc. (the "Company") on Form 10-K for the year ended December 31, 2023 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company for the periods presented therein.

Date: February 13, 2024

By: /s/ August J. Troendle

August J. Troendle

Chief Executive Officer and

Chairman of the Board of Directors

(Principal Executive Officer)

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of Medpace Holdings, Inc. (the "Company") on Form 10-K for the year ended December 31, 2023 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company for the periods presented therein.

Date: February 13, 2024

By: /s/ Kevin M. Brady
Kevin M. Brady
Chief Financial Officer
(Principal Financial Officer)

MEDPACE LOCATIONS

NORTH AMERICA

Cincinnati, OH
(HQ, Includes Lab and Clinic)
Dallas, TX
Denver, CO
Mexico City, Mexico

AFRICA

Johannesburg, South Africa

ASIA-PACIFIC

Beijing, China
Hong Kong
Melbourne, Australia
Navi Mumbai, India
Oaska, Japan
Seoul, South Korea
Shanghai, China (Includes Lab)
Singapore (Includes Lab)
Taipei, Taiwan
Tokyo, Japan

EUROPE

Belgrade, Serbia
Budapest, Hungary
Kyiv, Ukraine
Leuven, Belgium (Includes Lab)
London, UK
Lyon, France
Maastricht, Netherlands
Madrid, Spain
Milano, Italy
München, Germany
Prague, Czech Republic
Rotterdam, Netherlands
Stirling, UK
Warsaw, Poland

LATIN AMERICA

Buenos Aires, Argentina
São Paulo, Brasil

MIDDLE EAST

Rehovot, Israel


MEDPACE