UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

☒ ANNUAL REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2022

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
Commission File Number 000-51470

AtriCure, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**34-1940305**
State or other jurisdiction of incorporation or organization	(I.R.S. Employer Identification Number)
7555 Innovation Way, Mason, OH	**45040**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number including area code: (513) 755-4100
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, $.001 par value	ATRC	NASDAQ Global Market

Securities Registered Pursuant to Section 12(g) of the Act:
None

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

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

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted 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 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 are 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 Common Stock held by non-affiliates of the registrant, based upon the closing sale price of the Common Stock on June 30, 2022, the last business day of the registrant's most recently completed second fiscal quarter as reported on the NASDAQ Global Market, was approximately $1,851.6 million.

Class	**Outstanding February 17, 2023**
Common Stock, $.001 par value	46,568,044

DOCUMENTS INCORPORATED BY REFERENCE

Items 10, 11, 12, 13 and 14 of Part III of this Form 10-K incorporate information by reference from the registrant's definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year covered by this Form 10-K.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Form 10-K, including the sections titled "Management's Discussion and Analysis of Financial Condition and Results of Operations", "Risk Factors" and "Quantitative and Qualitative Disclosures about Market Risk" contains forward-looking statements regarding our future performance. All forward-looking information is inherently uncertain and actual results may differ materially from assumptions, estimates or expectations reflected or contained in the forward-looking statements as a result of various factors, including those set forth under "Risk Factors" and elsewhere in this Form 10-K. There may be additional risks of which we are not presently aware or that we currently believe are immaterial which could have an adverse impact on our business. Forward-looking statements address our expected future business, financial performance, financial condition and results of operations, and often contain words such as "intends," "estimates," "anticipates," "hopes," "projects," "plans," "expects," "seek," "believes," "see," "should," "will," "would," "opportunity," "could," "can," "may," "future," "predicts," "target," "potential," and similar expressions and the negative versions of those words, and may be identified by the context in which they are used. Such statements are based only upon current expectations of AtriCure. Any forward-looking statement speaks only as of the date made. Reliance should not be placed on forward-looking statements because they involve known and unknown risks, uncertainties and other factors which may cause actual results, performance or achievements to differ materially from those expressed or implied. Forward-looking statements include statements that address activities, events, circumstances or developments that AtriCure expects, believes or anticipates will or may occur in the future. Forward-looking statements are based on AtriCure's experience and perception of current conditions, trends, expected future developments and other factors it believes are appropriate under the circumstances and are subject to numerous risks and uncertainties, many of which are beyond AtriCure's control. With respect to the forward-looking statements, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995. These forward-looking statements speak only as of the date of this Form 10-K. We undertake no obligation to publicly update or revise any forward-looking statements to reflect new information or future events or otherwise unless required by law.

WEBSITE AND SOCIAL MEDIA DISCLOSURE

We use our website (www.atricure.com) and our corporate Facebook, Instagram, YouTube, LinkedIn and Twitter 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 Isolator® Synergy ™ clamp, EPi-Sense® coagulation device, AtriClip® Flex·V®, and cryoSPHERE® probe, among others, and their respective logos. Solely for convenience, we may refer to trademarks in this Annual Report on Form 10-K without the ™ 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.

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 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 disclosures 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 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.

PART I

(Dollar and share amounts referenced in this Part I are in thousands.)

ITEM 1. BUSINESS

Overview

We are a leading innovator in treatments for atrial fibrillation (Afib), left atrial appendage (LAA) management and post-operative pain. Afib is an irregular heartbeat, or arrhythmia, which affects over 37 million people worldwide, including more than eight million people in the United States, and is a growing epidemic. It is the most common cardiac arrhythmia encountered in clinical practice and results in high utilization of healthcare services. Patients often progress from being in Afib intermittently (paroxysmal) to being in Afib continuously. The continuous Afib patient population includes early persistent Afib, which lasts seven days to 6 months, persistent Afib, which lasts 6 months to one year, and long-standing persistent Afib, which lasts longer than one year. It is estimated that 3.5 million people in the United States suffer from long-standing persistent Afib. Afib often occurs in conjunction with other cardiovascular diseases, including hypertension, congestive heart failure, left ventricular dysfunction, coronary artery disease and valvular disease.

Our ablation and left atrial appendage management (LAAM) products are used by physicians during open-heart and minimally invasive procedures. In open-heart procedures, physicians are typically performing heart surgery for other emergent heart conditions, and our products are used in conjunction with (or "concomitant" to) such a procedure. Minimally invasive procedures are performed on a standalone basis, and often include multi-disciplinary or "hybrid" approaches, combining surgical procedures using AtriCure ablation and AtriCure LAAM products with catheter ablation performed by an electrophysiologist.

Our pain management solutions are used by physicians to freeze nerves during cardiothoracic or thoracic surgical procedures. Recovery from cardiothoracic and thoracic surgery can be complicated and painful. Many surgeons use multi-modal pain management strategies that include various pain management techniques, including oral delivery of opioid and non-opioid pain medications. Our cryoICE cryoSPHERE® probe for pain management (Cryo Nerve Block) provides temporary relief of post-operative pain, allowing the patient's body to heal after surgery while the nerves regenerate and sensation is regained.

We sell our products to medical centers through our direct sales force in the United States and in certain international markets, such as Germany, France, the United Kingdom, the Benelux region and Australia. We also sell our products through distributors who in turn sell our products to medical centers in Japan, China and other international markets. Our business is primarily transacted in U.S. Dollars; direct sales transactions outside the United States are transacted in Euros, British Pounds or Australian Dollars.

Market Overview

Afib is the most commonly diagnosed sustained cardiac arrhythmia, with approximately 1.2 million diagnoses annually in the United States. Afib is an under-diagnosed condition due in large part to the fact that patients with Afib often have mild or no symptoms, and their Afib is often only diagnosed when they seek treatment for an associated condition, such as a structural heart disease or stroke. Symptoms of Afib may include heart palpitations, dizziness, fatigue and shortness of breath, and these symptoms may be debilitating and life threatening in some cases. When a patient is in Afib, abnormal electrical impulses cause the atria, or upper chambers of the heart, to fibrillate, or beat rapidly, irregularly and in an uncoordinated fashion. As a result, blood in the atria may be in stasis, increasing the risk that a blood clot will form and cause a stroke or other serious complications. In patients with Afib, a significant percentage of those clots can form inside of the LAA. We believe that increasing awareness of Afib and improved diagnostic screening will result in an increased number of patients diagnosed with Afib over time. Also, since the prevalence of Afib increases with age, there will likely be an increase in the number of diagnosed Afib patients in the United States as the population ages. We believe that these trends in the United States also apply globally.

Afib is a condition that doctors often find difficult to treat and, historically, there has been no widely accepted long-term cure for Afib. This difficulty is exacerbated with more serious forms of Afib, or persistent and long-standing persistent Afib. Over the past two decades, technology advancements have made surgical ablation more effective, repeatable and available to cardiac surgeons and electrophysiologists around the world. Societal guideline changes from the Society of Thoracic Surgeons (STS), Heart Rhythm Society (HRS) and American Association of Thoracic Surgery (AATS) now have Class I recommendations for concomitant surgical ablation, meaning that it is a "recommended" treatment for patients who have structural heart disease and Afib. In addition, guidelines for the treatment of more serious forms of Afib for patients without structural heart disease have also been introduced in the past several years. These societal guidelines

are reflective of the scientific evidence suggesting that surgical and hybrid ablation is safe and effective for patients who have Afib.

Of the patients undergoing open-heart surgery globally on an annual basis, we estimate that over 300,000 are potential candidates for surgical ablation using our products. Today, we estimate that less than 20% of those candidates are being treated, but we believe many are not treated in a manner that will cure them. In addition, Afib is thought to be responsible for approximately 15% to 20% of the estimated 800,000 strokes that occur annually in the United States. According to the American Heart Association, the risk of stroke is five times higher in people with Afib. Studies have also suggested that 90% of clots that cause strokes in patients who have Afib originate from within the LAA. Recently, a very large independent international randomized trial, Left Atrial Appendage Occlusion Study (LAAOS) III, demonstrated a significant reduction in strokes when the LAA was managed during cardiac surgery. Afib accounts for billions of dollars in hospitalization-related and office visit costs in the United States each year. Indirect costs, such as the management of Afib-related strokes, are also believed to be significant. Because of the risk of stroke and the significant cost burden on the healthcare system, more and more surgeons are routinely addressing the LAA, both in patients who have Afib, but also in those who do not have Afib but may be at increased risk of developing the disease in the future. We believe that our AtriClip system is safer, more effective and easier to use than other products and techniques for excluding the LAA during cardiac surgery. Therefore, we believe that the market for our ablation products and the AtriClip system represent a significant growth opportunity.

Many Afib patients without other underlying structural heart disease, especially those with more advanced forms of the disease, are symptomatic and experience conditions such as palpitations, breathlessness and drowsiness. Because of this, these patients tend to be motivated to seek treatment to alleviate their symptoms. Many patients who are symptomatic are treated by an electrophysiologist using catheter ablation. Catheter ablation is considered a percutaneous procedure that does not require the opening of the chest and involves catheters inserted through a small puncture in the groin. In addition to catheter ablation, there are other treatment options for patients with Afib, including pharmacological therapy (anti-arrhythmic drugs) and implantable pacemakers. It is estimated that approximately 250,000 to 350,000 Afib patients are treated by catheter ablation every year in the U.S., a number that is expected to grow 10 to 15% annually. While the majority of paroxysmal Afib patients treated by catheter ablation tend to experience freedom from Afib, less than a third of long-standing persistent patients treated by catheter ablation are cured of their Afib at one year, and it declines even more thereafter. Recent randomized, prospective, multi-center data from the CONVERGE™ IDE clinical trial show that these long-standing persistent Afib patients can experience double the success rate by adding an ablation on the outside surface of the heart using AtriCure's EPi-Sense ablation system. Thus, we believe the EPi-Sense ablation system used as a minimally invasive or Hybrid AF™ therapy represents a significant growth opportunity for the Company.

Cardiothoracic and thoracic surgery involving an incision through the ribcage, typically referred to as thoracotomy access, can often result in significant post-operative pain and longer hospital recovery times as patients refrain from mobilizing their chest near the incision site. It is estimated that each year approximately 150,0000 cardiac and thoracic procedures are performed in the United States. Hospital recovery times can vary from two to eight days depending on the procedure, operative complications associated with the procedure, pain management protocol and other factors. Most surgeons will employ a multi-modal pain management protocol that includes various pain management techniques, including techniques such as epidural delivery of medication directly around the spinal cord, intravenous or oral delivery of opioid and non-opioid pain medications, or other strategies. More focused, local techniques include syringe injections between vertebrates, and Cryo Nerve Block which uses cryothermic energy to ablate peripheral nerves, temporarily stopping the transmission of pain signals coming from the chest wall during surgery. The nerve "scaffolds" remain intact, allowing axons to regenerate and restore nerve function over time. Cryo Nerve Block can be delivered using our cryoICE cryoSPHERE® probe, which is specifically designed for Cryo Nerve Block. Depending on the degree of invasiveness, physicians and their nursing staff will take advantage of multiple ways of managing pain for their patients. In recent years, prescription narcotics, or opioids, have come under heavy scrutiny due to their potential for long-term dependency, overdose and possible death. Both federal and local governments in the United States have proposed and implemented new regulations to curb the opioid overdose epidemic. It is also estimated that one in seven cardiothoracic surgical patients develops an unhealthy post-procedural addiction to prescription narcotics, making alternative, non-opioid pain management modalities, such as Cryo Nerve Block, an increasingly important part of how physicians manage post-operative pain.

AtriCure Solutions and Products

We believe that we are currently the market leader in the surgical treatment of Afib and pioneers of the application of Cryo Nerve Block in thoracic and cardiothoracic procedures. We anticipate that substantially all our revenue for the foreseeable future will relate to products we currently sell or are in the process of developing. Our products enable cardiothoracic surgeons to mimic all or portions of the cut and sew COX-MAZE procedure with faster, less invasive and less technically challenging approaches. We have completed, and continue to invest in, clinical studies for the use of our

ablation and left atrial appendage management products to treat Afib and reduce stroke. Leading cardiothoracic surgeons and electrophysiologists, including those who serve or who have served as consultants to us, have published results of preclinical and clinical studies utilizing our devices. The results of these studies have assessed efficacy, ease of use and safety endpoints.

Products for cardiac tissue ablation include those that create scar tissue using radio frequency (RF) energy or cryothermic modalities. Our ablation products are part of platforms each consisting of disposable hand pieces which connect to either a RF generator or a cryothermic generator. We generally place this capital equipment with our direct customers and sell to our distributors.

Products for open and minimally invasive ablation:

- **Isolator Synergy Clamps.** Our Isolator Synergy System generates the majority of our ablation-related revenue. All our clamps are single-use disposable RF products with jaws that close in a parallel fashion. We sell multiple configurations of our Isolator Synergy clamps. The various configurations provide the user with options to address patient specific procedure requirements or anatomy; however, all the clamps provide consistent performance using the same core technology. The parallel closure compresses tissue and evacuates the blood and fluids from the energy pathway to make the ablation more effective.

  Our Isolator® Synergy™ Ablation System includes multiple configurations approved by the United States Food and Drug Administration (FDA) for the treatment of persistent and long-standing persistent Afib concomitant to other open-heart surgical procedures. Certain products of our Isolator Synergy clamps bear the CE mark and may be commercially distributed throughout the member states of the European Union and other countries that comply with or mirror the Medical Device Directive. These products are available for sale in a number of other countries globally.

  The Isolator Synergy System has been studied in multiple FDA approved clinical trials, including the previously completed ABLATE clinical trial which supported a pre-market approval (PMA) in 2011, as well as the ongoing DEEP AF IDE pivotal trial and HEAL-IST clinical trial.

  In April 2022, we launched our most recent configuration, the EnCompass® clamp, following 510(k) clearance for ablation of cardiac tissue during cardiac surgery in July 2021. The EnCompass clamp was cleared through the FDA 510(k) process and is indicated for cardiac soft tissue ablation. The configuration is designed to make concomitant surgical ablations more efficient and is expected to drive deeper penetration of cardiac surgery procedures.

- **Multifunctional Pens and Linear Ablation Devices.** These devices are single-use disposable RF products that come in multiple configurations. The MAX Pen devices enable surgeons to evaluate cardiac arrhythmias, perform temporary cardiac pacing, sensing and stimulation and ablate cardiac tissue with the same device. Surgeons can readily toggle back and forth between these functions. The device comes in multiple configurations that have unique tissue contacting and shaft lengths. The Coolrail® device enables the user to make longer linear lines of ablation. Surgeons generally use one or more of our pen and linear devices in combination with Isolator Synergy clamps.

  All our pen and ablation devices are cleared for sale in the United States under FDA 510(k) clearances, with indications for the ablation of cardiac tissue and/or the treatment of cardiac arrhythmias. Our Isolator Synergy pens bear the CE mark, and most configurations may be commercially distributed throughout the member states of the European Union and other countries that comply with or mirror the Medical Device Directive. These products are available for sale in a number of other countries globally.

Products for open ablation:

- **cryoICE Cryoablation System.** The cryoICE cryoablation system is used in both open ablation procedures and cryoanalgesia. The system consists of the cryoICE BOX generator along with a variety of single-use disposable probes. The primary differences between these cryoablation probes is the form of the tissue contacting distal end. The cryoICE devices enable the user to make linear ablations of varied lengths. Surgeons may utilize the cryoICE devices in combination with Isolator Synergy clamps or independently.

  Our cryoablation devices are cleared for sale in the United States under FDA 510(k) clearances, bear the CE mark for commercial distribution throughout the member states of the European Union and other countries that comply with or mirror the Medical Device Directive. These products are available for sale in a number of other countries globally.

The ICE-AFIB clinical trial is studying the safety and efficacy of the cryoICE system for persistent and long-standing persistent Afib treatment during concomitant on-pump cardiac surgery.

Products for minimally invasive ablation:

- **EPi-Sense Guided Coagulation System with VisiTrax Technology.** The EPi-Sense Guided Coagulation System with VisiTrax technology utilizes monopolar RF energy for the coagulation of tissue. The EPi-Sense device is a single-use disposable which is also capable of intraoperative cardiac signal sensing and recording when connected to an external recording device.

  Our EPi-Sense® System was studied through the CONVERGE clinical trial and was subsequently approved in 2021 by FDA for the treatment of patients with systemic, drug refractory, long-standing persistent Afib when augmented with an endocardial ablation catheter. Hybrid AF™ Therapy is the only FDA-approved minimally invasive procedure to treat patients with long-standing persistent Afib and represents a proven option for patients with advanced disease.

  The EPi-Sense System bears the CE mark and is commercially distributed throughout the member states of the European Union and other countries that comply with or mirror the Medical Device Directive. This system is available for sale in a number of other countries globally.

Products for pain management:

- **cryoSPHERE probe**. The cryoSPHERE probe is used to apply cryothermic energy to targeted intercostal peripheral nerves in the ribcage in order to provide temporary pain relief. This technique, called Cryo Nerve Block, is applied intraoperatively by cardiothoracic or thoracic surgeons and results in temporary pain relief for up to 90 days after the procedure. Sensation typically returns to the affected region of the chest after this period.

  The cryoSPHERE probe is 510(k) cleared for managing pain by temporarily ablating peripheral nerves and bears the CE mark for commercial distribution throughout the member states of the European Union and other countries that comply with or mirror the Medical Device Directive. Scientific data that has been published on the effects of Cryo Nerve Block has generally shown a significant reduction in prescription of opioids, significantly reduced length of stay for patients in the hospital and other benefits.

Products for appendage management:

- **AtriClip System**. The AtriClip® LAA Exclusion System includes various combinations of an implantable device (AtriClip) coupled to a single-use disposable applier. The AtriClip is designed to exclude the left atrial appendage by mechanically clamping the appendage from the outside of the heart. The left atrial appendage has been shown to be a source of arrhythmias. The exclusion of the LAA eliminates blood flow between the left atrial appendage and the atrium while avoiding contact with circulating blood and provides electrical isolation benefits after placement. We believe that the AtriClip system is potentially safer, more effective and easier to use than other techniques for permanently excluding the left atrial appendage. The device comes in two geometries (a rectangular configuration which encircles the targeted tissue and "V" shape which allows for an alternative lateral access) and a variety of lengths, which are matched to each patient's anatomy. The appliers come in multiple forms tailored to specific procedural needs depending on the type of surgery and how the surgeon is accessing the heart.

  In the United States, our AtriClip LAA Exclusion System products are 510(k)-cleared with an indication for the exclusion of the LAA, performed under direct visualization and in conjunction with other cardiac surgical procedures. Direct visualization, in this context, requires that the surgeon can see the heart directly, with or without assistance from a camera, endoscope or other appropriate viewing technologies. Certain products of our AtriClip LAA Exclusion System bear the CE mark for commercial distribution throughout the member states of the European Union and other countries that comply with or mirror the Medical Device Directive. These products are available for sale in a number of other countries globally.

  The AtriClip LAA Exclusion System is currently being evaluated under the Left Atrial Appendage Exclusion for Prophylactic Stroke Reduction (LeAAPS™) IDE clinical trial.

We sell additional products and enabling technologies that hold 510(k) approvals and/or bear the CE mark. The LARIAT® System is a solution for soft-tissue closure that includes a suture loop coupled to a single-use disposable applier. The Lumitip™ dissector is used by surgeons to separate tissues to provide access to key anatomical structures that are

targeted for ablation. Other enabling technologies include our Glidepath™ guides for placement of our clamps, Subtle™ Cannula's to support access for our EPi-Sense catheters and a line of reusable cardiac surgery instruments.

Business Strategy

We are passionately focused on healing the lives of patients affected by Afib and pain after surgery. Our strategy is to expand the treatment options for patients who suffer from Afib, have a high risk of stroke, or who suffer from post-operative pain, through the continued development of our technologies and expansion of our product offerings, global commercial expansion and clinical science investments. The key elements of our strategy include:

New Product Innovation. Our product development pipeline includes projects which extend and improve our existing products, as well as research and development projects for new technologies. We plan to continue to develop new and innovative products, including those that allow us to enter new markets or expand our growth in existing markets.

Invest in Clinical Science. We continue to invest in landmark clinical trials to validate the long-term results of procedures using our products and to support applications to regulatory agencies for expanded indications. We also make clinical research grants to support our product development efforts and expand the body of clinical evidence.

Build Physician and Societal Relationships. We have formed consulting relationships with cardiothoracic surgeons, cardiologists, electrophysiologists, stroke neurologists and thoracic surgeons who work with us to develop and evaluate our products. Additionally, we regularly form advisory boards made up of key opinion leaders in multiple specialties to provide input to our training and clinical programs. We are building these relationships along with extended care professionals such as nurse practitioners and advanced practice providers, to provide insight regarding treatment trends, input on future product direction and education for providers involved in treating the disease.

We are partnering with leading surgical and cardiology societies to increase the awareness of Afib treatment options. In the past five years, both the Society for Thoracic Surgeons and the Heart Rhythm Society have released new guidelines on the surgical treatment of Afib in both open-heart and minimally-invasive settings.

Provide Training and Education. We have recruited and trained sales and physician education professionals to effectively communicate to our customers the unique features and benefits of our technologies as they relate to their indications for use. Our highly trained professionals meet with physicians at institutions around the world to provide education and technical training on the features, benefits and safe-and-effective use of our products. With the approval of our Isolator Synergy System, we instituted a program to train providers on the use of the Isolator Synergy System to treat persistent and long-standing persistent Afib in patients undergoing open-heart surgery. With the approval of the EPi-Sense System, we began programs to train physicians on the use of the EPi-Sense system in a hybrid approach to treating patients with long-standing persistent Afib. We believe these training and education programs have increased awareness about the surgical treatment of Afib, and we will continue to make investments to serve our physician customers. As a result of the educational process, we believe that awareness of our technologies is growing and will result in the increased use of our products.

Expand Adoption of Our Products. We believe that the catalysts for expanded adoption of our products include procedural advancements, such as the hybrid or multi-disciplinary procedure for treatment of long-standing persistent Afib, continued innovation and product development, training and education of new customers, and the publication of additional scientific evidence. We also believe that ongoing research activities, including prospective clinical trials, new procedural techniques and anticipated presentations and publications will create an increased demand for our products.

Evaluate Acquisition Opportunities. We expect to continue to be opportunistic with respect to acquisitions. We evaluate acquisition opportunities on a variety of factors, including product innovation, clinical differentiation and other strategic and financial considerations.

Research and Product Development

Our ongoing research and development activities support our business strategy to expand treatment options and increase awareness in our current markets, as well as enabling expansion into adjacent markets. We are engaged in developing and researching new and existing products or concepts, preclinical studies, clinical trials and other regulatory activities. We make significant investments in both product development and clinical science activities to drive the advancement and adoption of new therapies in the market place.

In the United States, a significant risk device requires the prior submission of an application for an Investigational Device Exemption (IDE) to FDA for approval before initiating a clinical trial. Clinical trials are required to support a pre-market approval (PMA) and are sometimes required for 510(k) clearance. Some trials require a feasibility study followed by a pivotal trial. We are conducting several clinical trials to validate the long-term results of procedures using our products

and to support applications to regulatory agencies for expanded indications. In addition, we also conduct various studies to gather clinical data regarding our products. Key trials and studies are:

LeAAPS. In April 2022, FDA approved the protocol for the Left Atrial Appendage Exclusion for Prophylactic Stroke Reduction (LeAAPS) IDE clinical trial. The trial is designed to evaluate the effectiveness of prophylactic LAA exclusion using the AtriClip LAA Exclusion System for the prevention of ischemic stroke or systemic arterial embolism in cardiac surgery patients without pre-operative AF diagnosis who are at risk for these events. This prospective, multicenter, randomized trial evaluates safety at 30 days post-procedure to demonstrate no increased risk with LAA exclusion during cardiac surgery and effectiveness with a minimum follow-up of five years post procedure for all subjects. The trial provides for enrollment of up to 6,500 subjects at up to 250 sites worldwide. Site initiation and enrollment is ongoing.

HEAL-IST. In February 2022, FDA approved the protocol for the Hybrid Epicardial and Endocardial Sinus Node Sparing Ablation Therapy for Inappropriate Sinus Tachycardia (IST) clinical trial (HEAL-IST). The HEAL-IST clinical trial is designed to study the safety and efficacy of a hybrid sinus node sparing ablation procedure using the Isolator Synergy Surgical Ablation System for the treatment of symptomatic, drug refractory or drug intolerant IST. The trial is a prospective, multicenter, single arm trial that evaluates safety 30 days post-procedure and evaluates primary effectiveness of freedom from IST (as specified) at 12 months post-procedure. The trial provides for enrollment of up to 142 patients at up to 40 sites in the United States, United Kingdom and European Union. The first patient enrollment in the trial occurred in June 2022; site initiation and enrollment is ongoing.

CONVERGE. We conducted the CONVERGE IDE clinical trial to evaluate the safety and efficacy of the EPi-Sense Guided Coagulation System with VisiTrax technology to treat symptomatic persistent and long-standing persistent Afib patients who are refractory or intolerant to at least one Class I and/or III anti-arrhythmic drug. In April 2021, we announced the PMA approval of the EPi-Sense System for treatment of symptomatic, drug-refractory, long-standing persistent atrial fibrillation, when augmented with an endocardial ablation catheter. We believe the Convergent procedure, or Hybrid AF therapy, provides the only compelling treatment option for a large and vastly underpenetrated population of Afib patients. The CONVERGE trial demonstrated superiority in the hybrid therapy arm compared to endocardial catheter ablation alone. In patients diagnosed with long-standing persistent Afib, the therapy arm showed a 29% absolute difference in efficacy at 12 months (78% relative improvement) and an absolute difference of 35% at 18 months (110% relative improvement). There was also a 33% absolute difference in Afib burden reduction in favor of the Hybrid AF therapy at 12 months, which increased to 37% at 18 months. In April 2021, we also received approval from FDA to conduct the CONVERGE Post Approval Study (PAS). This study allows for 325 patients to be enrolled at up to 50 sites. The first patient enrollment in the trial occurred in June 2022; site initiation and enrollment is ongoing.

ICE-AFIB. The ICE-AFIB clinical trial is designed to study the safety and efficacy of the cryoICE® system for persistent and long-standing persistent Afib treatment during concomitant on-pump cardiac surgery. The trial provides for enrollment of up to 150 patients at up to 20 sites in the United States. Enrollment began in January 2019 and remains ongoing.

We have invested in other clinical trials to validate the long-term results of procedures using our products and to support applications to regulatory agencies for expanded indications. The Company is in the process of analyzing data for publication, future development activities, or possible evaluation of label expansions. These trials include the DEEP AF Pivotal Study, CEASE AF and aMAZE IDE clinical trials.

Sales, Marketing and Medical Education

Our global sales and marketing efforts focus on educating physicians about our unique technologies and their clinical benefits. We only promote our products for uses described in their labeling as cleared or approved by relevant regulatory agencies, and train our sales force on the use of our products to the extent the products are cleared or approved.

Our sales team in the United States has approximately 260 employees. We select our sales personnel based on their expertise, experience and reputation in the medical device industry and their knowledge of cardiac and thoracic surgery procedures and technologies.

We market and sell our products in selected countries outside of the United States through a combination of independent distributors and direct sales personnel. Our international sales team includes approximately 50 employees focused on our direct markets, such as Germany, France, the United Kingdom, Australia and the Benelux region. We also maintain a network of distributors who market and sell our products in Asia, South America and Canada, as well as certain countries in Europe. We continue to evaluate opportunities for further expansion into markets outside of the United States.

Competition

Our industry is competitive, is subject to change and can be significantly affected by new product introductions and other activities of industry participants. We compete with other companies and divisions of companies that sell a single or limited number of competitive product lines or in certain geographies. Our primary competitor in the cardiac surgery market is Medtronic, plc, who provides similar surgical ablation products to ours that have been adopted by physicians for the treatment of Afib and related conditions. AtriCure has the only medical devices that are approved by FDA for treating long-standing persistent Afib: the Isolator Synergy Ablation, the first medical device to receive FDA approval for the treatment of persistent Afib in a concomitant setting, and the EPi-Sense System, which received FDA approval for standalone treatment of Afib with Hybrid AF Therapy. Several other companies offer intracardiac catheter devices that are commonly used by electrophysiologists to treat Afib. These catheter devices are FDA-approved to treat the paroxysmal and persistent forms of Afib, but they are not FDA indicated to treat long-standing persistent Afib. In particular, because Hybrid AF Therapy involves both epicardial and endocardial techniques, these catheters are complementary to our business, not competitive. We believe that our products improve treatment outcomes for patients with non-paroxysmal forms of Afib when combined with intracardiac catheter devices.

AtriCure is monitoring other companies who are conducting clinical trials that may support FDA approval of their devices to treat persistent and long-standing persistent Afib, although we are not aware of any ongoing FDA trials by other companies to study ablation of long-standing persistent Afib patients. New product introductions, technological advances and regulatory clearances from competitors may impact the use of our products in cardiac procedures. In addition to the cardiac surgery market, we also consider competition within the post-operative pain market. Currently, we are not aware of other companies in the United States who are pursuing cryothermic nerve block therapies for thoracic surgery. There are other companies outside of the United States who market their devices for a similar therapy.

Third-Party Reimbursement

Reimbursement for health care services in the United States is generally made by third-party payors. These payors include private insurers and government insurance programs, such as Medicare and Medicaid. The Medicare program, the largest single payor in the United States, is a federal health benefit program administered by the Centers for Medicare and Medicaid Services (CMS) and covers certain medical care items and services for eligible beneficiaries, primarily individuals over 65 years old, as well as chronically disabled individuals. Because Medicare beneficiaries comprise a large percentage of the populations for which our products are used, and private insurers may follow the coverage and payment policies for Medicare, Medicare's coding, coverage and payment policies for cardiothoracic surgical procedures are significant to our business.

Medicare's Part A program pays hospitals for inpatient services, such as cardiothoracic surgery, under the Inpatient Prospective Payment System, which provides a predetermined payment based on the patient's discharge diagnoses and surgical procedure(s). Discharge diagnoses are grouped into Medicare Severity Diagnosis Related Groupings (MS-DRG). There are several cardiac surgery MS-DRGs associated with the surgical treatment of Afib, with and without a concomitant open-heart procedure. When an ablation device and/or LAAM device is used during a concomitant open-heart procedure, Medicare's hospital reimbursement is based upon the patient's primary structural heart surgical procedure. In contrast, sole therapy minimally invasive ablation or surgical LAAM procedures typically are reimbursed under a general cardiac surgery or intracardiac procedure MS-DRG. We believe hospital reimbursement rates for sole therapy and concomitant therapy cardiac surgical ablation or surgical LAAM are adequate to cover the cost of our products even when multiple procedures are performed. Similar to surgical ablation for Afib or surgical LAAM, cryoablation performed for post-operative pain management is reimbursed as part of the primary procedure, open thoracic or cardiac surgery, MS-DRG. We believe hospital reimbursement rates are adequate in these situations.

Physicians are reimbursed for their services separately under the Medicare Part B physician fee schedule. When performing a surgical cardiac ablation with and without a concomitant open-heart procedure, surgeons report Current Procedural Terminology (CPT) codes to receive a professional fee payment. Multiple CPT codes may be reported by a physician during a procedure if multiple procedures are performed. There are category one CPT codes for both concomitant and standalone surgical Afib treatment, as well as surgical LAAM. However, some providers utilize unlisted CPT codes to obtain reimbursement in these situations.

In addition to the Medicare program, many private payors look to CMS policies as a guideline in setting their coverage policies and payment amounts. The current coverage policies of these private payors may differ from the Medicare program, and payment rates may be higher, lower, or the same as the Medicare program. In some cases, certain private payors adopt negative coverage policies with respect to therapies involving our products. We provide private payors information on FDA labels and new published studies to support positive coverage policies. We also engage third-party reimbursement consultants that provide support to our customers in the event of a coverage denial.

Outside of the United States, third-party reimbursement varies widely by geography and by the type of therapy in which our devices are used. For example, even though a new medical device may have been approved for commercial distribution, we may find limited demand for the device until coverage and sufficient reimbursement levels have been obtained from governmental and private third-party payors. In addition, some private third-party payors require that certain procedures or the use of certain products be authorized in advance as a condition of reimbursement. In some countries, cost containment initiatives and health care reforms include initiatives like governmental reviews of reimbursement rate benchmarks, which may significantly reduce reimbursement for procedures using our medical devices or deny coverage for those procedures altogether. We are actively working to pursue market access in certain geographies, which includes applying for new reimbursement for therapies in which our devices are being used or pursuing specific reimbursement for utilization of our devices.

Government Regulation

Our products are medical devices and are subject to regulation in the United States by FDA and other federal agencies, and by comparable authorities in the European Union (EU) and other countries worldwide.

US Regulation:

FDA regulations govern nearly all of the activities that we perform, or which are performed on our behalf, to ensure that medical products distributed domestically or exported internationally are safe and effective for their intended uses. FDA regulates the total product lifecycle from early design, development and testing, to manufacturing and commercialization activities, as well as post-market surveillance and reporting, including corrective actions, removals and recalls. Unless an exemption applies, most medical devices distributed in the United States require either 510(k) clearance or PMA from FDA.

510(k) Clearance Pathway. To obtain 510(k) clearance, we must submit a notification to FDA demonstrating that our proposed device is substantially equivalent to a predicate device, i.e., a previously cleared and legally marketed 510(k) device or a device that was in commercial distribution before May 28, 1976, for which FDA has not yet called for the submission of a PMA. Any modification to a 510(k)-cleared device that would constitute a major change in its intended use, or a change in its design or manufacture that could significantly affect the safety or effectiveness of the device, requires a new 510(k) clearance.

Premarket Approval Pathway. A PMA must be submitted to FDA if the device cannot be cleared through the 510(k) process and is not otherwise exempt. A PMA must be supported by extensive data, including but not limited to technical, preclinical, clinical, real world data, manufacturing and labeling, to demonstrate the safety and effectiveness of the device for its intended use. A PMA supplement is required for changes affecting the safety or effectiveness of a PMA-approved device, including but not limited to new indications for use, a different manufacturing facility, or changes in the manufacturing process, labeling, or design specifications or components of the device.

Clinical Trials. Clinical trials are required to support a PMA and are sometimes required for 510(k) clearance. Clinical trials are subject to extensive recordkeeping and reporting requirements. Our clinical trials must be conducted under the oversight of an Institutional Review Board (IRB) for the relevant clinical trial sites and must comply with FDA regulations, including, but not limited to, those relating to current good clinical practices. We are also required to obtain the written informed consent of patients in form and substance that complies with both FDA requirements and other human subject protection regulations established by FDA. We must conduct our clinical studies in compliance with state and federal privacy laws, including the Health Insurance Portability and Accountability Act (HIPAA).

Educational Grants. FDA regulates the promotion of medical devices by manufacturers and prohibits the promotion by manufacturers of uses that are not within the approved or cleared labeling of the device. FDA does not regulate the practice of medicine or the conduct or content of medical education conducted by third parties, which may include uses that are not within approved or cleared device labeling. Manufacturers may provide unrestricted financial support for independent third-party medical education programs in the form of educational grants intended to offset the cost of such programs. If the manufacturer controls or unduly influences the content of such programs, FDA considers those programs to be promotional activities by the manufacturer and thus subject to FDA regulation including promotional restrictions. We seek to ensure that our educational grants program is conducted in accordance with FDA criteria for independent educational activities. However, we cannot provide an assurance that FDA or other government authorities would view the third-party programs we have supported as being independent.

Pervasive and Continuing Regulation. There are numerous regulatory requirements that apply after a product is cleared or approved by FDA, including, but not limited to: annual establishment registration and product listing; current

good manufacturing practice for devices, referred to as the Quality System Regulation (QSR); labeling requirements and advertising and promotion guidelines; assessing the significance of any changes to a device; monitoring and reporting serious and adverse events and certain device malfunctions; and reporting certain device corrections and removals. Our manufacturing facilities and processes are also subject to FDA inspections to ensure compliance with QSR.

In addition to FDA regulation, the advertising and promotion of certain medical devices are also regulated by the Federal Trade Commission and by state regulatory and enforcement authorities. On occasion, promotional activities for FDA-regulated products can be the subject of enforcement action brought under healthcare reimbursement laws and consumer protection statutes. In addition, under the Federal Lanham Act and similar state laws, competitors and others can initiate litigation relating to advertising claims.

Fraud, Abuse and False Claims. We are directly and indirectly subject to various federal and state laws governing our relationship with healthcare providers. In particular, the Anti-Kickback Statute is a federal criminal law that applies broadly and prohibits the knowing and willful offer or payment of remuneration to induce or reward patient referrals or the generation of business involving any item or service payable by a federal health care program. The federal False Claims Act (FCA) imposes civil liability on any person or entity that submits, or causes the submission of, a false or fraudulent claim to the United States government. Damages under the FCA consist of the imposition of fines and penalties and can be significant. The FCA also allows a private individual or entity with knowledge of past or present fraud against the federal government to sue on behalf of the government to recover the civil penalties and treble damages.

AtriCure is a member of the Advanced Medical Technology Association (AdvaMed), a voluntary United States trade association for medical device manufacturers. This association has established guidelines and protocols for medical device manufacturers in their relationships with healthcare professionals on matters including research and development, product training and education, grants and charitable contributions, support of third-party educational conferences and consulting arrangements. Adoption of the AdvaMed Code of Ethics for Interactions with Healthcare Professionals (the "AdvaMed Code") by a medical device manufacturer is voluntary, and while the Office of the Inspector General and other federal and state healthcare regulatory agencies encourage its adoption and may look to the AdvaMed Code, they do not view adoption of the AdvaMed Code as proof of compliance with applicable laws. We have adopted the AdvaMed Code and incorporated its principles in our standard operating procedures, employee training programs and relationships with medical professionals.

Regulation Outside of the United States:

Sales of medical devices outside of the United States are subject to foreign governmental regulations which vary substantially from country to country. The time required to obtain certification or approval by a foreign country may be longer or shorter than that required for FDA clearance or approval and the requirements may be different, but the general trend is toward increasing regulation and greater requirements for the manufacturer to provide more bench testing and clinical evidence. In addition, regulatory agencies and authorities can halt distribution within the country or otherwise take action in accordance with local laws.

Conformity Assessment Pathway. In the European Union, various directives regulate the design, manufacture and labeling of medical devices, and more stringent conformity assessment requirements have been put in place with the 2017 Medical Device Regulation, effective May 26, 2021. The method for assessing conformity varies depending on the type and class of the product, but typically involves a combination of quality system assessment and product conformity assessment by a third-party notified body, an independent and neutral institution appointed by a country to conduct the conformity assessment. This third-party assessment includes a review of documentation related to the device that may be as extensive as the documentation requirements that the United States FDA requires for higher risk products. The notified body also audits the manufacturer's quality system and performs a detailed review of the testing of the manufacturer's device. Successful completion of a conformity assessment procedure allows a manufacturer to issue a declaration of conformity with the requirements of the relevant directive and affix the CE mark to the device. Devices that bear the CE mark may be commercially distributed throughout the member states of the European Union and other countries that comply with or mirror the medical device directives or medical device regulations.

Pervasive and Continuing Regulation. There are numerous regulatory requirements that apply after a product has been approved by the notified body for CE marking, including, but not limited to: labeling, advertising and promotion, reporting of device modifications, monitoring the safety of the product and performing corrections and removals when necessary, maintaining "state of the art" requirements for the devices through compliance with standards, and obtaining recertification of the quality system and individual device certificates on a periodic basis.

AtriCure is a member of MedTech Europe, a voluntary trade association for the medical technology industry including diagnostics, medical devices and digital health. MedTech Europe and its members are committed to a high level

of ethical business practices and have put in place strict guidelines to advise medical technology manufacturers on how to collaborate ethically with healthcare professionals (HCPs). These guidelines are set out in the MedTech Europe Code of Ethical Business Practice (MedTech Code), which regulates all aspects of the industry's relationships with HCPs and healthcare organizations (HCOs). It covers medical education and research and development. It also introduces an independent enforcement mechanism and transparency obligations. The Code sets clear and transparent rules for the industry's relationships with HCPs and HCOs, including company events, third party organized events, arrangements with consultants, gifts, research and financial support to medical education. We have adopted the MedTech Code and incorporated its principles in our standard operating procedures, employee training programs and relationships with medical professionals.

Consulting Relationships

We have developed consulting relationships with scientists and physicians throughout the world to support our research and development, clinical and training and education programs. We work closely with these thought leaders to understand unmet needs and emerging applications for the treatment of Afib and other diseases and conditions.

Our physician consulting agreements are intended to satisfy the requirements of the personal services “Safe Harbor” regulation as well as the AdvaMed Code and the MedTech Europe Code of Ethical Business Practice. As such, they provide for payment of a fair market value fee only for legitimate services rendered to us. We do not expect or require the consultant to utilize or promote our products, and consultants are required to disclose their relationship with us as appropriate, such as when publishing an article in which one of our products is discussed. Amounts paid to physicians in the United States are disclosed by us in annual reports submitted to CMS under the federal “Open Payments” law. Amounts paid to physicians in certain other countries are also disclosed by us in reports submitted to various governmental agencies in those countries, in accordance with the laws of the jurisdictions where those physicians reside or practice, or where the payments are made.

Intellectual Property

Protection of our intellectual property is a priority for our business, and we rely on a combination of patent, copyright, trademark and trade secret laws to protect our interests. Our ability to protect and use our intellectual property rights in the continued development and commercialization of our technologies and products, operate without infringing the proprietary rights of others, and prevent others from infringing our proprietary rights is important to our continued success. We will be able to protect our products and technologies from unauthorized use by third parties only to the extent that they are covered by valid and enforceable patents, trademarks or copyrights, or are effectively maintained as trade secrets, know-how or other proprietary information.

We hold numerous issued United States and international patents. We also have multiple pending United States and international patent applications. We seek patent protection relating to technologies and products we develop in both the United States and in selected foreign countries. While we own much of our intellectual property, including patents, patent applications, trademarks, trade secrets, know-how and proprietary information, we also license patents and related technology of importance to the commercialization of our products. To continue developing and commercializing our current and future products, we may license intellectual property from commercial or academic entities to obtain the rights to technology that is required for our research, development and commercialization activities.

All of our employees and technical consultants are required to execute confidentiality agreements in connection with their employment and consulting relationships with us. We also generally require them to agree to disclose and assign to us all inventions conceived in connection with their relationship with us. We devote significant resources to obtaining patents and other intellectual property and protecting our other proprietary information. If valid and enforceable, these patents may give us a means of blocking competitors from using infringing technology to compete directly with our products. We also have proprietary information that may not be patentable. With respect to proprietary information that is not patentable, we have chosen to rely on trade secret protection and confidentiality agreements to protect our interests.

Manufacturing

We assemble, inspect, test and package the majority of our products at our facilities in Ohio, and our products are sterilized by third parties. Purchased components are generally sourced from a single supplier, but alternatives to these suppliers are available in the event this would be needed.

To minimize supply chain risks, we maintain inventory levels of components and raw materials specific to the respective part or device. We assess tooling and equipment on an ongoing basis. Order quantities and lead times for components purchased from outside suppliers are based on our forecasts derived from historical demand and anticipated future demand. Lead times may vary significantly depending on the size of the order, time required to fabricate and test the

components, specific supplier requirements and current market demand for the components and subassemblies. To date, we have not experienced significant product availability or delay issues directly related to obtaining any of our components.

We regularly audit our suppliers for compliance with our quality system requirements, the QSR and/or applicable International Organization of Standardization (ISO) standards. We are an FDA-registered medical device manufacturer and certified to ISO 13485:2016. In addition, we have successfully participated in the Medical Device Single Audit Program (MDSAP) and have been certified accordingly. The MDSAP program is recognized in Australia, Brazil, Canada, Europe, Japan and the United States.

We are subject to numerous federal, state and local laws relating to such matters as laboratory practices, the experimental use of animals, the use and disposal of hazardous or potentially hazardous substances, safe working conditions, manufacturing practices, environmental protection and fire hazard control.

Human Capital Management

Successful execution of our strategy is dependent on attracting, developing and retaining key employees and members of our management team. The skills, experience and industry knowledge of our employees significantly benefit our operations and performance. We continuously evaluate, modify and enhance our internal processes to increase employee engagement, productivity and efficiency, as well as to recruit new employees to support our growth.

We had approximately 1,050 employees as of January 31, 2023. None of the employees were represented by a labor union, and we have never experienced any employment-related work stoppages. We consider our employee relations to be in good standing. At AtriCure, the employee experience is crucial to the ongoing success of the company. We work to provide a culture that augments the intrinsic rewards of our mission – one where employees feel valued and supported every day. We strive to engage with our employees across every level of the organization, celebrate their personal milestones and cultivate a sense of trust and transparency. Our culture provides opportunities for employees to feel a part of a community, and specific benefits such as paid leave for volunteering and individual recognition with “Heart of AtriCure” awards highlight our commitment to this culture. Our employees have voted us as a Top Workplace seven times in the past eight years, and our culture is regularly cited in our internal engagement surveys as a leading positive attribute of the Company. Our culture is a central asset to our Company.

Employee Compensation and Benefits

Competitive compensation and benefits are an integral part of our efforts to attract and retain world-class talent. We are committed to regularly analyzing and evaluating the effectiveness of our compensation and benefit programs and benchmarking our programs against the market and our industry peers. Annual pay increases and other forms of incentive compensation are based on performance and market evaluation. Performance expectations are communicated to employees at the time of hiring, as well as upon internal transfer or promotion, and documented through our annual performance management process.

Benefits for eligible U.S.-based employees include medical, dental and vision insurance; paid leave for vacation, illness and volunteer time; parental leave, fertility and adoption assistance; a 401(k) retirement plan that includes a company matching contribution; a stock purchase plan enabling employees to purchase AtriCure stock at a reduced price; and life and disability insurance. Our international employee benefits vary due to local regulations and offerings. We ensure compliance with all statutory and mandatory benefits which vary by country, such as medical, disability, retirement/ pension, workers compensation, accident, social benefits and paid leave.

Diversity, Equity, and Inclusion

We have an ongoing commitment to advancing Diversity, Equity and Inclusion (DE&I) throughout our workplace and the communities in which we operate. By honoring the dignity of each person, we foster a culture of inclusion and belonging where everyone is welcome. We do this by embracing diverse voices and experiences, supporting programs and resources that build an authentic and respectful workplace and providing fair and equitable opportunities for each person to contribute meaningfully in both their work and their personal lives.

We believe our workforce needs to be diverse, and leverage the skills and perspectives of a variety of backgrounds and experiences. To be a company that attracts, develops and retains top talent from all backgrounds and life experiences, we regularly evaluate and improve hiring practices to foster a more inclusive environment. We strive to embed a culture where employees can bring their whole selves to work. In addition to DE&I learning labs, we are also increasing responsibility and accountability to all executives to deliver results. Our goal is to be a global leader and role model in equity and inclusion because it's good for our business and our people. Our DE&I efforts are overseen internally by our Chief Human Resources Officer who works with our leadership to further advance our commitment and programs by

fostering employee understanding, intentionality and measurable processes. This commitment is also reflected in the current makeup of our Board of Directors who was recognized by the National Association of Corporate Directors (NACD) as the winner of the 2022 Diversity, Equity & Inclusion Award in the Small Cap - Public Company category. This award recognizes boards that have improved their governance and created long-term value for stakeholders by implementing forward-thinking diversity, equity, and inclusion practices. We believe that the diversity of our Board of Directors helps to set the "tone at the top" for our DE&I initiatives.

Training and Development

Employee training and development is a priority at AtriCure. We strive to create an environment where employees can realize their potential. We provide a range of training courses and online resources, as well as developmental coaching and mentoring. We have a regular monthly schedule of opportunities that allows employees to access both instructor-led classrooms and self-directed web-based courses. We are committed to identifying and developing the talents of our next-generation leaders, and conduct a comprehensive review of our leadership team on an annual basis. In that process, we review existing leaders and prospective leaders throughout the organization and determine next best steps for their future development. Developmental opportunities for employees can range from leadership support to technical skill-building.

We also work to ensure all employees have access to training that is consistent with the competencies that are measured as part of performance management: Delivering Results with Accountability, Initiative and Involvement, Teamwork and Support, and for those who manage people, Develop and Maintain High Performance Teams and Communication. In addition to formalized training, we put emphasis on ensuring that we provide employees experiences that will enable them to build new skills that enable them to meet their career aspirations.

Safety for All Employees

We are committed to maintaining a safe workplace and promoting the well-being of all of our employees. We have implemented multiple safety programs and regularly perform safety hazard evaluations within our facilities. Programs include our Emergency Site Action Plan for emergencies such as fire response, severe weather threats and shelter in place incidents, as well as our Certified First Responders safety program that include Red Cross training of employees in CPR, AED Usage and First Aid practices. We recognize that the use of tobacco is linked to many adverse health effects, including those that impact the heart, and we offer our employees tobacco cessation programs. As of 2021, our Ohio office locations are entirely tobacco- and nicotine-free, and to the extent permitted in the states of our other offices, those locations are also entirely tobacco- and nicotine-free.

Available Information

Our principal executive offices are located at 7555 Innovation Way, Mason, Ohio and our telephone number is 513-755-4100. We are subject to the reporting requirements under the Securities Exchange Act of 1934. Consequently, we are required to file reports and information with the Securities and Exchange Commission (SEC) including reports on the following forms: Form 10-K, Form 10-Q, Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934. These reports and other information concerning us may be accessed through the SEC's website at http://www.sec.gov. You may also find, free of charge, on our website at http://www.atricure.com, electronic copies of our Form 10-Ks, Form 10-Qs, Form 8-Ks and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934. Such filings are placed on our website as soon as reasonably practicable after they are filed or furnished, as the case may be, with the SEC. Our charters for our Audit, Compensation, Nominating and Corporate Governance, Strategy, and Compliance, Quality and Risk Committees and our Code of Conduct are available on our website. In the event that we grant a waiver under our Code of Conduct to any of our officers or directors or make any material amendments to the Code of Conduct, we will publish it on our website within four business days. Information on our website is not deemed to be a part of this Form 10-K.

ITEM 1A. RISK FACTORS

The following discussion of risk factors contains forward-looking statements. These risk factors may be important to understanding other statements in this report. The following information should be carefully considered in addition to the other information set forth in this report, including the Management's Discussion and Analysis of Financial Conditions and Results of Operations section and Consolidated Financial Statements and accompanying notes. If any of the risks or uncertainties described below actually occur or continue to occur, our business, reputation, financial condition, results of operations, future prospects and stock price could be materially and adversely affected. The risks below are not the only risks we face and additional risks not currently known to us or that we presently deem immaterial may emerge or become material at any time and may negatively impact our business, reputation, financial condition, results of operations, future prospects or stock price. The order in which these factors appear should not be construed to indicate their relative importance or priority.

Risk Factors Summary

The following is a summary of the principal risks that could adversely affect our business, operations, financial results and stock price.

Commercial Execution and Product Performance Risks

- Failure to achieve widespread market acceptance domestically may harm operating results.
- Competition from existing and new products and procedures may decrease our market share.
- Clinical data may be negative, or our trials may not satisfy requirements of regulatory authorities, slowing or reversing the rate of adoption or reducing use of our products by the medical community.
- Our success depends, in part, on the adoption of the EPi-Sense device for the treatment of Afib following 2021 FDA pre-market approval of this product.
- We may be unable to promptly train sufficient numbers of physicians in the use of our products, resulting in slower market acceptance.
- Reliance on independent distributors to sell our products in some international markets could adversely impact our sales.

Industry Condition Risks

- A prolonged downturn in macroeconomic conditions may materially adversely affect our business.
- Rising healthcare costs may result in efforts by government and private payors to contain or reduce healthcare spending, including for procedures that utilize our products.
- Adverse changes in governmental and third party payors' policies toward coverage and reimbursement for surgical procedures would harm our ability to promote and sell our products.

Operational Risks

- Unfavorable publicity relating to our business or industry could negatively impact our operations.
- Reliance upon single and limited source third-party suppliers and service providers could harm our business if such third parties cannot provide materials or products or perform services for us in a timely manner.
- Our manufacturing operations are highly centralized and any disruption could harm our business.
- Our business could be negatively impacted if we fail to successfully integrate acquisitions.
- If we fail to properly manage our anticipated growth, our business could suffer.
- If we cannot retain our skilled and experienced officers and other employees, or recruit, hire, train and integrate sufficient additional qualified personnel, our business may suffer.
- Disruptions of critical information systems or material breaches in the security of our systems could harm our business, customer relations and financial condition.
- Our insurance may not cover our indemnification obligations and other liabilities associated with our operations.

Legal & Compliance Risks

- We could face substantial penalties if we do not fully comply with federal, state and foreign regulations.
- We may be subject to fines, injunctions and penalties if we fail to comply with extensive FDA regulations.
- Unless and until we obtain additional FDA approval for our products, we will not be able to promote most of them to prevent stroke and our inability to maintain or grow our business could be harmed. We may be subject to fines, injunctions and penalties if we are found to be promoting our products for unapproved or off-label uses.

- Modifications to our products may require new clearances or approvals by FDA; failure to obtain such clearances or approvals where required could result in a recall of the modified products and limitation on future sales until cleared or approved.
- If we or our third-party vendors fail to comply with extensive FDA regulations relating to the manufacturing of our products we may be subject to fines, injunctions and penalties.
- Any adverse finding, judgement, settlement or enforcement action against us as a result of the current *qui tam* lawsuit could negatively affect our business.
- The use of products we sell may result in injuries or other adverse events that lead to product liability claims.
- Our ability to compete in the marketplace could be affected if our intellectual property rights fail to provide meaningful commercial protection for our products.
- Litigation and administrative proceedings over patent and other intellectual property rights are common in our industry, and any litigation or claim against us may cause us to incur substantial costs.
- We are subject to various regulatory and other risks related to selling our products internationally which could harm our revenue.
- Any allegation or determination of wrongdoing under the Foreign Corrupt Practices Act or other anti-corruption laws could have a material adverse effect on our business.
- Compliance with European Union medical device regulation may limit our ability to sell our products in European markets.

Financial Risks

- Our quarterly financial results are likely to fluctuate significantly.
- We have a history of net losses, and we may never become profitable.
- Our income tax expense could increase and adversely impact cash flows if our federal tax net operating loss and general business credit carryforwards expire or are limited.
- Governmental authorities may question our intercompany transfer pricing policies or change their laws in a manner that could increase our effective tax rate.
- Our goodwill may become impaired which could adversely affect our financial performance.
- We may take inventory-related charges as a result of inaccurate forecasting or estimates of product life cycles which would negatively affect our gross margins and results of operations.
- We are subject to credit risk from our accounts receivable related to our sales.
- We may be unable to comply with the covenants of our Loan Agreement.

Common Stock Risks

- We may fail to achieve our publicly announced guidance about our business which could cause a decline in our stock price.
- Securities analysts may discontinue coverage for our common stock or issue reports which could have a negative impact on the market price of our common stock.
- Our common stock may experience extreme fluctuations in the price and trading volume causing our stockholders to lose some or all of their investment.
- The sale of material amounts of common stock could encourage short sales by third parties and depress the price of our common stock causing our stockholders to lose part or all of their investment.
- Stockholder ownership of our common stock may be diluted if we sell common stock in a capital raising transaction or issue shares in a future acquisition.
- Anti-takeover provisions in our amended and restated certificate of incorporation and amended and restated bylaws and under Delaware law could inhibit a change in control or a change in management that stockholders consider favorable.
- Our stockholders must rely on stock appreciation for any return on investment as we do not expect to pay dividends in the foreseeable future.

Commercial Execution and Product Performance Risks

If our products do not achieve widespread market acceptance in the United States, our operating results will be harmed, and we may not achieve or sustain profitability.

Our success depends in large part on the medical community's acceptance of our products in the United States, which is the largest revenue market in the world for medical devices. Our ablation and LAAM product sales in the United States generate the majority of our revenue. We expect that sales of these products will continue to account for a majority of our revenue for the foreseeable future and that our future revenue will depend on the increasing acceptance by the medical community of our products as standard of care for treating Afib, managing the LAA and managing pain with Cryo Nerve Block therapy. The U.S. medical community's acceptance of our products will depend upon our ability to demonstrate the safety and efficacy, advantages, long-term clinical performance and cost-effectiveness of our products. In addition, acceptance of products for the treatment of Afib is dependent upon, among other factors, the level of awareness and education of the medical community about the surgical treatment of Afib and the existence, effectiveness and safety of our products. Market acceptance and adoption of our products for the treatment of Afib also depends on the level of health insurer (including Medicare) reimbursement to physicians and hospitals for procedures using our products. Negative publicity resulting from incidents involving our products, or similar products could have a significant adverse effect on the overall acceptance of our products. If we encounter difficulties growing the market for our products in the U.S., we may not be able to increase our revenue enough to achieve or sustain profitability, and our business and operating results will be seriously harmed.

Competition from existing and new products and procedures may decrease our market share and may cause our revenue to decline, and could adversely affect our operating results.

The medical device industry, including the market for the treatment of Afib, is highly competitive, is subject to rapid technological change and can be significantly affected by new product introductions and promotional activities. There is no assurance that our products will compete effectively against drugs, catheter-based ablation, implantable devices, other surgical ablation devices, other products or techniques to occlude the left atrial appendage or other products and techniques to manage post-operative pain. Our products may become obsolete prior to the end of their anticipated useful lives, or we may introduce new products or next-generation products prior to the end of the useful life of our current products, either of which may require us to dispose of existing inventory and related capital equipment and/or write off their value or accelerate their depreciation. In addition, other products may be sold at lower prices. Due to the size of our markets, we anticipate that new or existing competitors may develop competing products, procedures and/or clinical solutions. There are few barriers to prevent new entrants or existing competitors from developing products to compete directly with ours. Companies also compete with us to attract qualified scientific and technical personnel as well as funding. Most of our competitors and potential competitors have greater financial, manufacturing, marketing and research and development capabilities than we have, and may obtain FDA approval or clearance for their products. The introduction of new products, procedures or clinical solutions, or our competitors obtaining FDA approvals or clearances, may result in price reductions, reduced margins, loss of market share, or may render our products obsolete, which could adversely affect our revenue and future profitability.

Any clinical data that is generated regarding our products may not be positive, and our current and planned clinical trials may not satisfy the requirements of the FDA or other regulatory authorities.

Our clinical trials are expensive to conduct, typically taking many years to complete and have uncertain outcomes. Delays in patient enrollment or failure of patients to consent or continue to participate in a clinical trial may cause an increase in costs and delays in the approval and attempted commercialization of our products or result in the failure of the clinical trial. Conducting successful clinical studies may require the enrollment of large numbers of clinical sites and patients, and suitable patients may be difficult to identify and recruit. Patient enrollment in clinical trials and completion of patient participation and follow-up depends on many factors, including the size of the patient population; the nature of the trial protocol; the attractiveness of, or the discomforts and risks associated with, the treatments received by enrolled subjects; the availability of appropriate clinical trial investigators, support staff, and proximity of patients to clinical sites; and the ability to comply with the eligibility and exclusion criteria for participation in the clinical trial and patient compliance.

Our products will be measured on their efficacy which is dependent on the number of patients that experience Afib, stroke, or continued arrhythmias such as IST, following treatment with our products and the number of patients that have serious complications resulting from ablations or LAA exclusion using our products. We cannot provide any assurance that the data collected during our clinical trials will be compelling to the medical community because it may not be scientifically meaningful, may identify unexpected safety concerns, and may not demonstrate that procedures utilizing our

products are an attractive option when compared against data from alternative procedures and products. Negative data could affect the use of our products and harm our business and prospects.

Conversely, positive results from clinical trial experience should not be relied upon as evidence that any of our products will gain market acceptance or that they will satisfy regulatory requirements for product approval. There can be no assurance that the results of studies conducted by collaborators or other third parties will be viewed favorably or are indicative of our own future study results. We may be required to demonstrate with substantial evidence through well-controlled clinical trials that our product candidates are either (i) safe and effective for use in a diverse population for their intended uses or (ii) are substantially equivalent to predicate devices under section 510(k) of the Food, Drug and Cosmetic Act (FDCA). Success in early clinical trials does not mean that future clinical trials will be successful because product candidates in later-stage clinical trials may fail to demonstrate sufficient safety and efficacy to the satisfaction of the FDA and other regulatory authorities despite having progressed through initial clinical trials.

Our devices and products may not be approved or cleared even though clinical or other data, in our view, are adequate to support an approval or clearance. The FDA or other regulatory authorities may:

- disagree with our trial design and our interpretation of data from preclinical studies and clinical trials;
- change requirements for the approval or clearance of a product candidate even after reviewing and providing comment on a protocol for a pivotal clinical trial;
- approve or clear a product candidate for fewer or more limited indications or uses than we request;
- grant approval or clearance contingent on the performance of costly post-marketing clinical trials; or
- not approve the labeling claims necessary or desirable for the successful commercialization of our product candidates.

These factors would affect the rate and extent to which our products are adopted in the medical community.

Our success depends, in part, on the adoption of the EPi-Sense device for the treatment of Afib following 2021 FDA pre-market approval of this product.

On April 29, 2021, we announced FDA approval of the EPi-Sense System to treat patients diagnosed with long-standing persistent Afib. Our success depends, in part, on the medical community's acceptance of this and other of our products in the United States. We expect that our future revenue will depend on the increasing acceptance by the medical community of our products as standard of care for treating Afib. The U.S. medical community's acceptance of the EPi-Sense System and other of our products will depend upon our ability to demonstrate long-term clinical performance and advantages and cost-effectiveness of our products. In addition, acceptance of products for the treatment of Afib is dependent upon, among other factors, the level of awareness and education of the medical community about the surgical treatment of Afib and the existence, effectiveness and safety of our products. Market acceptance and adoption of our products or procedures for the treatment of Afib, including but not limited to the EPi-Sense System, also depends on the level of health insurer (including Medicare) reimbursement to physicians and hospitals for procedures using our products. Negative publicity resulting from incidents involving our products, or similar products, could have a significant adverse effect on the overall acceptance of our products. Market acceptance could be delayed by lack of physician willingness to attend training sessions by the time required to complete this training, or by restrictions on our ability to provide training. If we are unable to gain and/or maintain such support, training services and collaboration, our ability to grow the market for our products may be impacted and we may not be able to increase our revenue enough to achieve or sustain profitability, and our business and operating results may be seriously harmed.

Our success is dependent on our ability to train surgeons in the safe and effective use of our products. Restrictions on our ability to train surgeons, or unwillingness of surgeons to participate in such training, could reduce the market acceptance of our products.

Our research and development efforts and our marketing strategy depend heavily on obtaining support, physician training assistance and collaboration from experienced physicians at leading commercial and research hospitals, particularly in the U.S. and Europe. We deliver training on the safe and effective use of our products consistent with their FDA (or equivalent regulatory body) approved or cleared indications. While we train providers in the safe and effective use of our products, we do not train them to use any of our products specifically to treat Afib unless the product is FDA-approved specifically for the treatment of Afib. In order for surgeons to learn to use our products, they must attend training sessions to familiarize themselves with the products, and they must be committed to learning the technology. Further, surgeons must utilize the technology on a regular basis to ensure they maintain the skill set necessary to use the products. Continued market acceptance could be delayed by lack of surgeon willingness to attend training sessions, by the time

required to complete this training or by restrictions on our ability to provide training. If we are unable to gain and/or maintain such support, training services and collaboration, our ability to market our products and, as a result, our financial condition, results of operations and cash flow, could be materially and adversely affected.

We rely on independent distributors to market and sell our products in certain markets outside of the United States, and a failure of our independent distributors to successfully market our products or any disruption in their ability to do so may adversely impact our sales.

We depend on independent third-party distributors to sell our products in certain markets outside of the United States, and if these distributors do not perform, we may be unable to maintain or increase international revenue. We intend to grow our business outside of the United States, and to do so, we will need to attract additional distributors or hire direct sales personnel to expand the territories in which we sell our products. Independent distributors may terminate their relationship with us or devote insufficient sales efforts to our products. We are not able to control our independent distributors, and they may not be successful in marketing our products. In addition, many of our independent distributors outside of the United States initially obtain and maintain foreign regulatory approval for sale of our products in their respective countries. Our failure to maintain our relationships with our independent distributors outside of the United States, or our failure to recruit and retain additional skilled independent distributors in these locations, could have an adverse effect on our operations. Turnover among our independent distributors, even if replaced, may adversely affect our short-term financial results while we transition to new independent distributors or direct sales personnel. The ability of these independent distributors to market and sell our products could also be adversely affected by unexpected events, including, but not limited to, power failures, nuclear events, local economic and political conditions, natural or other disasters and war or terrorist activities. In addition, the ability of our independent distributors to borrow money from their existing lenders or to obtain credit from other sources to purchase our products may be impaired or our independent distributors could experience a significant change in their liquidity or financial condition, all of which could impair their ability to distribute our products and eventually lead to distributor turnover, and may adversely impact our sales.

Industry Conditions Risks

A prolonged downturn in macroeconomic conditions in which we operate may materially adversely affect our business.

A prolonged economic downturn as a result of the collateral effects of inflationary pressures, increases in interest rates, slower economic activity, a future outbreak of COVID-19 or a similar infectious disease, among other factors, may adversely impact our business. Specifically, impacts to procedure volumes and hospital staffing may result in reductions of our revenue and materially and adversely affect our results of operations and cash flows. We may experience diversion of healthcare resources away from the conduct of clinical trials, including the diversion of hospitals serving as our clinical trial sites. Key clinical trial activities, such as clinical trial site monitoring, subject visits and study procedures, may be interrupted. We may also encounter interruption or delays in the operations of FDA or other regulatory authorities, which may impact review and approval timelines. Geopolitical issues around the world have impacted the global supply chain and could materially adversely affect global economic growth, disrupt discretionary spending habits and generally decrease demand for our products and services. Our customers' ability to borrow money from their existing lenders or to obtain credit from other sources to purchase our products may be impaired, resulting in a decrease in sales. We are unable to predict the extent to which current or future worldwide economic conditions may impact our business.

Healthcare costs have risen significantly over the past decade. There have been and may continue to be proposals by legislators, regulators and third-party payors to keep, contain or reduce healthcare costs.

The continuing efforts of governments, insurance companies and other payors of healthcare costs to contain or reduce these costs, combined with closer scrutiny of such costs, could lead to patients being unable to obtain approval for payment from these third-party payors. The cost containment measures that healthcare providers are instituting both in the U.S. and internationally could harm our business. Some healthcare providers in the U.S. have adopted or are considering a managed care system in which the providers contract to provide comprehensive healthcare for a fixed cost per person. Healthcare providers may attempt to control costs by authorizing fewer elective surgical procedures, eliminating incremental procedure costs or by requiring the use of the least expensive devices possible, which could adversely affect the demand for our products or the price at which we can sell our products. Some healthcare providers have sought to consolidate and create new companies with greater market power, including hospitals. As the healthcare industry consolidates, competition to provide products and services has become and will continue to become more intense. This has resulted and likely will continue to result in greater pricing pressures and the exclusion of certain suppliers from important marketing segments.

Adverse changes in governmental and third party payors' policies toward coverage and reimbursement for surgical procedures would harm our ability to promote and sell our products.

Third-party payors are increasingly exerting pressure on medical device companies to reduce their prices. Even to the extent that the use of our products is reimbursed by private payors and governmental payors, adverse changes in payors' policies toward coverage and reimbursement for surgical procedures would also harm our ability to promote and sell our products. Payors continue to review their policies and can, without notice, deny coverage for treatments that include the use of our products. Because each third-party payor individually approves coverage and reimbursement, obtaining these approvals may be time-consuming and costly. In addition, third-party payors may require us to provide scientific and clinical support for the use of our products. Adverse changes in coverage and reimbursement for surgical procedures could harm our business and reduce our revenue.

FDA does not regulate the practice of medicine. Physicians may use our products in circumstances where they deem it medically appropriate, such as for the treatment of Afib or the reduction in stroke risk, even though FDA may not have approved or cleared our products to be marketed specifically for those indications. Some payors may deny coverage or payment for the use of our products for indications not specifically approved or cleared by FDA. Often, these denials can be overcome through an appeals process, but there is no guarantee of success in these cases.

Our revenue generated from sales outside of the United States is also dependent upon coverage and reimbursement within prevailing foreign healthcare payment systems. Foreign healthcare payors generally do not provide the same level of reimbursement for sole-therapy minimally invasive procedures utilizing ablation devices and related products as payors in the United States. In addition, healthcare cost containment efforts similar to those we face in the United States are prevalent in many of the other countries in which we sell our products, and these efforts are expected to continue. To the extent that the use of our devices has historically received reimbursement under a foreign healthcare payment system, such reimbursement, if any, has typically been significantly less than the reimbursement provided in the United States. If coverage and adequate levels of reimbursement from governmental and third-party payors outside of the United States are not obtained and maintained, sales of our products outside of the United States may decrease, and we may fail to achieve or maintain significant sales outside of the United States.

Operational Risks

We may experience unfavorable publicity relating to our business or our industry. This publicity could have a negative impact on our ability to attract and retain customers, our sales, clinical studies involving our products, our reputation and our stock price.

We may experience a negative impact on our business from newspaper articles or other media reports relating to, among other things, our compliance with FDA regulations for medical device reporting, adverse patient and clinical outcomes, potential impact to our business from competitors or emerging technology and concerns over disclosure of financial relationships between us and our consultants. We believe that such publicity would potentially have a negative impact on our clinical studies, business, results of operations and financial condition, or cause other adverse effects, including a decline in the price of our stock.

We rely upon single and limited source third-party suppliers and third-party service providers, making us vulnerable to supply problems and price fluctuations which could harm our business.

We rely on single and limited source third-party vendors for the manufacture and sterilization of components used in our products. For example, we rely on one vendor to manufacture several of our RF generators, as well as separate vendors to manufacture our EPi-Sense System and related RF generator. It would be a time consuming and lengthy process to secure these products from an alternative supplier. We have significant concentrations with a limited number of vendors. Additionally, our devices are sterilized prior to use using ethylene oxide at third-party sterilizers. Recently, certain sterilization facilities have experienced mandated temporary closures due to concerns over the impact of emissions of ethylene oxide from such facilities, and the Environmental Protection Agency has proposed regulations aimed at reducing hazardous air pollutants. We also rely on third parties to handle our warehousing and logistics functions for European and several international markets on our behalf.

Our reliance on outside manufacturers, sterilizers and suppliers also subjects us to risks that could harm our business, including:

- we may not be able to obtain adequate supply in a timely manner or on commercially reasonable terms;
- we may have difficulty timely locating and qualifying alternative suppliers or sterilizers;

- switching components may require product redesign and new submissions to FDA which would increase our costs and could significantly delay production or, if FDA refuses to approve the changes, completely eliminate our ability to sell our products;
- future regulatory actions to modify sterilization processes may cause sterilizers to close, even on a temporary basis, or require new regulatory approvals for us to use, creating lost sterilization capacity and delays;
- our suppliers manufacture products for a range of customers, and fluctuations in demand for the products those suppliers manufacture for others may affect their ability to deliver components to us in a timely manner; and
- our suppliers may encounter financial hardships unrelated to our demand for components, which could inhibit their ability to fulfill our orders and meet our requirements.

Identifying and qualifying additional or replacement suppliers or sterilizers for any of the components used in our products or replacement of warehousing and logistics providers, if required, may not be accomplished quickly and could involve significant additional costs. Any interruption or delay in the supply of components, materials, sterilization or warehousing and logistics, or our inability to obtain components or materials from alternate sources at acceptable prices in a timely manner, could impair our ability to meet the demand of our customers and cause them to cancel orders or switch to competitive products and could therefore have a material adverse effect on our business, financial condition and results of operations.

Our manufacturing operations are currently conducted at a single location, and any disruption at our manufacturing facility could increase our expenses and decrease our revenue.

Our manufacturing operations are currently conducted at a single location in Ohio. While we take precautions and are in process of qualifying a second building on our Ohio campus, we do not maintain a backup manufacturing facility, making us dependent on the current facility and production workers for the continued operation of our business. A natural or other disaster could damage or destroy our manufacturing equipment and cause substantial delays in our manufacturing operations, which could lead to additional expense and decreased revenue due to lack of supply. The insurance we maintain may not be adequate to cover our losses. With or without insurance, damage to our facility or our other property due to a natural disaster or casualty event could have a material adverse effect on our business, financial condition and results of operations.

We may enter into significant acquisitions in the future. Acquisitions have inherent uncertainties and involve risks and difficulties in integrating that may adversely affect our business, results of operations and financial condition.

All acquisitions involve inherent uncertainties, which may include, among other things, our ability to:

- successfully identify targets for acquisition;
- negotiate reasonable terms;
- properly perform due diligence and determine significant risks associated with a particular acquisition;
- properly evaluate target company management capabilities; and
- successfully transition and integrate the acquired company into our business and achieve the desired performance.

We may acquire businesses with unknown liabilities, contingent liabilities or internal control deficiencies. We have plans and procedures in place to conduct reviews of potential acquisition candidates for compliance with applicable regulations and laws prior to acquisition. Despite these efforts, realization of any of these liabilities or deficiencies may increase our expenses, adversely affect our financial position through the initiation, pendency or outcome of litigation or otherwise, or cause us to fail to meet our public financial reporting obligations.

We have consummated three significant acquisitions since 2013 and in the future may continue to invest a substantial amount of capital in acquisitions. We continue to evaluate potential acquisition opportunities to support, strengthen and grow our business. There can be no assurance that we will be able to locate suitable acquisition candidates, acquire possible acquisition candidates, acquire such candidates on commercially reasonable terms, or integrate acquired businesses successfully in the future. In addition, any governmental review or investigation of our proposed acquisitions, such as by the Federal Trade Commission, may impede, limit or prevent us from proceeding with an acquisition. Future acquisitions may require us to incur additional debt and contingent liabilities, which may adversely affect our business, results of operations and financial condition. The process of integrating acquired businesses into our existing operations may result in operating, contract and supply chain difficulties, such as the failure to retain customers or management personnel. Such difficulties may divert significant financial, operational and managerial resources from our existing operations and make it more difficult to achieve our operating and strategic objectives.

If we fail to properly manage our anticipated growth, our business could suffer.

We may experience periods of rapid growth and expansion, which could place a significant strain on our personnel, information technology systems and other resources. In particular, the increase in our direct sales force requires significant management and other supporting resources. Any failure by us to manage our growth effectively could have an adverse effect on our ability to achieve our development and commercialization goals.

To achieve our revenue goals, we must successfully increase production output as required by customer demand. In the future, we may experience difficulties in increasing production, including problems with production yields and quality control, component supply and shortages of qualified personnel. These problems could result in delays in product availability and increases in expenses. Any such delay or increased expense could adversely affect our ability to generate revenues and adversely impact our operating results.

Future growth will also impose significant added responsibilities on management, including the need to identify, recruit, train and integrate additional employees. In addition, rapid and significant growth will place a strain on our administrative and operational infrastructure. In order to manage our operations and growth, we will need to continue to improve our operational and management controls, reporting and information technology systems and financial internal control procedures. If we are unable to manage our growth effectively, it may be difficult for us to execute our business strategy and our operating results and business could suffer.

We depend on our officers and other skilled and experienced personnel to operate our business effectively. If we are not able to retain our current employees or recruit, hire, train and integrate additional qualified personnel, our business will suffer and our future revenue and profitability will be impaired.

We are highly dependent on the skills and experience of our President and Chief Executive Officer, Michael H. Carrel, and certain other officers and key employees. We do not have any insurance in the event of the death or disability of key personnel. Our officers and key employees, with the exception of our President and Chief Executive Officer, do not have employment agreements, and they may terminate their employment and work elsewhere without notice and without cause or good reason. Currently we have non-compete agreements with our officers and other employees. Due to the specialized knowledge of each of our officers with respect to our products and our operations and the limited pool of people with relevant experience in the medical device field, the loss of service of one or more of these individuals could significantly affect our ability to operate and manage our business. The announcement of the loss of one or more of our key personnel could negatively affect our stock price.

We depend on our scientific and technical personnel for successful product development and innovation, which are critical to the success of our business. In addition, to succeed in the implementation of our business strategy, our management team must rapidly execute our sales strategy, obtain expanded FDA clearances and approvals, achieve market acceptance for our products and further develop products, while managing anticipated growth by implementing effective planning, manufacturing and operating processes. Managing this growth will require us to attract and retain additional management and technical personnel. We rely primarily on direct sales employees to sell our products in the United States and in Europe, and failure to adequately train them in the use and benefits of our products will prevent us from achieving our market share and revenue growth goals. We have key relationships with physicians that involve procedure, product, market and clinical development and training. If any of these physicians end their relationship with us, our business could be negatively impacted. We cannot assure you that we will be able to attract and retain the personnel and physician relationships necessary to grow and expand our business and operations. If we fail to identify, attract, retain and motivate these highly skilled personnel and physicians, we may be unable to continue our development and sales activities.

Disruptions of critical information systems or material breaches in the security of our systems could harm our business, customer relations and financial condition.

In the ordinary course of our business, we collect and store sensitive data, including intellectual property, our proprietary business information and that of our customers, suppliers and business partners, and personally identifiable information of our customers and employees in our data centers and on our networks. The secure processing, maintenance and transmission of this information is critical to our operations and business strategy. Like other companies, we experience attempts to gain unauthorized access to our systems and information on a regular basis. Despite our security measures, including employee training, our information technology and infrastructure are vulnerable to cyber-attacks, malicious intrusions, breakdowns, destruction, loss of data privacy, breaches due to employee error, malfeasance or other disruptions. Cyber-attacks are becoming more sophisticated and frequent, and our systems could be the target of malware, ransomware and other cyber-attacks. We have invested in our systems and the protection of our data to reduce the risk of an intrusion or interruption, and we monitor our systems on an ongoing basis for any current or potential threats. We can

give no assurances that these measures and efforts will prevent interruptions or breakdowns. If we are unable to detect or prevent a security breach or cyber-attack or other disruption from occurring, then we could incur losses or damage to our data, or inappropriate disclosure of our confidential information or that of others; and we could sustain damage to our reputation and customer and employee relationships, suffer disruptions to our business and incur increased operating costs including costs to mitigate any damage caused and protect against future damage, and be exposed to additional regulatory scrutiny or penalties and to civil litigation and possible financial liability, any of which could have a material adverse effect on our business, operating margins, revenues and competitive position.

We also rely in part on information technology to store information, interface with customers, maintain financial accuracy, secure our data and accurately produce our financial statements. If our information technology systems do not effectively and securely collect, store, process and report relevant data for the operation of our business, whether due to equipment malfunction or constraints, software deficiencies, human error or cyber incident, our ability to effectively plan, forecast and execute our business plan and comply with applicable laws and regulations could be materially impaired. Any such impairment could have a material adverse effect on our results of operations, financial condition and the timeliness with which we report our operating results.

Our insurance may not cover 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 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.

Legal & Compliance Risks

We spend considerable time and money complying with federal, state and foreign regulations in addition to FDA regulations, and, if we do not fully comply with such regulations, we could face substantial penalties.

We are subject to extensive regulation by the federal government and foreign countries in which we conduct business. The laws that affect our ability to operate our business in addition to the FDCA and FDA regulations include, but are not limited to, the following:

- the Federal Anti-Kickback Statute, which prohibits persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce either the referral of an individual, or furnishing or arranging for a good or service, for which payment may be made under federal healthcare programs such as the Medicare and Medicaid Programs;
- the Federal False Claims Act, which prohibits submitting a false claim or causing the submission of a false claim to the government;
- Medicare laws and regulations that prescribe the requirements for coverage and payment, including the amount of such payment, and laws prohibiting false claims for reimbursement under Medicare and Medicaid;
- state consumer protection, fraud and business practice laws, including the California Consumer Privacy Act (“CCPA”), which among other things, requires disclosures to California consumers and provides consumers new abilities to opt out of certain sales of personal information;
- state laws that prohibit the practice of medicine by non-doctors and by doctors not licensed in a particular state, and fee-splitting arrangements between doctors and non-doctors, as well as state law equivalents to the Anti-Kickback Statute and the Stark Law, which may not be limited to government-reimbursed items;
- federal and state healthcare fraud and abuse laws or laws protecting the privacy of patient medical information, including the Health Insurance Portability and Accountability Act (HIPAA) which protects medical records and other personal health information by limiting their use and disclosure, giving individuals the right to access, amend and seek accounting reasonably necessary to accomplish the intended purpose;
- laws and regulations, such as the General Data Protection Regulation in the European Union, that govern collection, use, disclosure, transfer and storage of personal data that we may collect from our employees, consultants or in conjunction with clinical trials;

- the Federal Trade Commission Act and similar laws regulating advertising and consumer protection; and
- similar and other regulations outside the United States.

Healthcare fraud and abuse regulations are complex, and even minor, inadvertent irregularities can potentially give rise to claims that a law has been violated. Any violations of these laws could result in a material adverse effect on our business, financial condition and results of operations. If there is a change in law, regulation or administrative or judicial interpretations, we may have to change our business practices or our existing business practices could be challenged as unlawful, which could have a material adverse effect on our business, financial condition and results of operations.

Our manufacturing operations and research and development activities involve the use of biological materials and hazardous substances and are subject to a variety of federal, state and local environmental laws and regulations relating to the storage, use, discharge, disposal, remediation of and human exposure to hazardous substances. Our research and development and manufacturing operations may produce biological waste materials, such as animal tissues and certain chemical waste. These operations are permitted by regulatory authorities, and the resultant waste materials are disposed of in compliance with environmental laws and regulations. Compliance with these laws and regulations may be expensive, and non-compliance could result in substantial liabilities. In addition, we cannot eliminate the risk of accidental contamination or injury to third parties from the use, storage, handling or disposal of these materials. In the event of contamination or injury, we could be held liable for any resulting damages, and any liability could exceed any applicable insurance coverage we may have. Our manufacturing operations may result in the release, discharge, emission or disposal of hazardous substances that could cause us to incur substantial liabilities, including costs for investigation and remediation.

If our past or present operations are found to be in violation of any of the laws described above or the other governmental regulations to which we, our distributors or our customers are subject, we may be subject to the applicable penalty associated with the violation, including civil and criminal penalties, damages, fines, exclusion from Medicare, Medicaid and other government programs and the curtailment or restructuring of our operations. If we are required to obtain permits or licensure under these laws that we do not already possess, we may become subject to substantial additional regulation or incur significant expense. Any penalties, damages, fines, curtailment or restructuring of our operations would adversely affect our ability to operate our business and our financial results. The risk of our being found in violation of these laws is increased by the fact that many of them have not been fully or clearly interpreted by the regulatory authorities or the courts, and their provisions are subject to a variety of interpretations and additional legal or regulatory change. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses, divert our management's attention from the operation of our business and damage our reputation.

If we fail to comply with the extensive FDA regulations relating to our business, we may be subject to fines, injunctions and penalties, and our ability to commercially distribute and promote our products may be hurt.

Our products are classified by FDA as medical devices and, as such, are subject to extensive regulation by FDA and numerous other federal, state and foreign governmental authorities. FDA regulations, guidance, notices and other issuances specific to medical devices are broad and regulate numerous aspects of our business. Compliance with FDA, state and other regulations can be complex, expensive and time-consuming. FDA and other authorities have broad enforcement powers. Furthermore, changes in the applicable governmental regulations could prevent further commercialization of our products and technologies and could materially harm our business.

If a serious failure to comply with applicable regulatory requirements was determined, it could result in enforcement action by FDA or other state or federal agencies, including the U.S. Department of Justice (USDOJ), which may include any of the following sanctions, among others:

- warning letters, fines, injunctions, consent decrees and civil penalties;
- repair, replacement, refunds, recall or seizure of our products;
- operating restrictions, partial suspension or total shutdown of production;
- suspension or termination of our clinical trials;
- refusing or delaying our pending requests for 510(k) clearance or PMAs, new intended uses or modifications to existing products;

- withdrawing 510(k) clearance or PMAs that have already been granted; and
- criminal prosecution.

If any of these events were to occur, we could lose customers and our production, product sales, business, results of operations and financial condition would be harmed.

We are also subject to medical device reporting regulations that require us to file reports with FDA if our products may have caused or contributed to a death or serious injury or, in the event of product malfunction, that if such malfunction were to recur, would likely cause or contribute to a death or serious injury. There have been incidents, including patient deaths, which have occurred during or following procedures using our products that we have not reported to FDA because we determined that our products did not malfunction and did not cause or contribute to the outcomes in these incidents. If FDA disagrees with us, however, and determines that we should have submitted reports for these adverse events, we could be subject to significant regulatory fines or other penalties. In addition, the number of medical device reports we make, or the magnitude of the problems reported, could cause us or FDA to terminate or modify our clinical trials or recall or cease the sale of our products, and could hurt commercial acceptance of our products and harm our reputation with customers.

Unless and until we obtain additional FDA approval for our products, we will not be able to promote most of them to prevent stroke, and our ability to maintain and grow our business could be harmed. We may be subject to fines, penalties, injunctions and other sanctions if we are deemed to be promoting the use of our products for unapproved, or off-label, uses.

Our business and future growth depend on the continued use of our products for the treatment of Afib. Unless the products are approved or cleared by FDA specifically for the treatment of Afib or prevention of stroke, we may not make claims about the safety or effectiveness of our products for such uses. In order to obtain additional FDA approvals to promote our products for the treatment of Afib or reduction in stroke risk, we will need to demonstrate in clinical trials that our products are safe and effective for such use. Development of sufficient and appropriate clinical protocols to demonstrate quality, safety and efficacy may be required and we may not adequately develop such protocols to support approval. We cannot assure you that any of our clinical trials will be completed in a timely manner or successfully or that the results obtained will be acceptable to FDA. We, FDA or the IRB may suspend a clinical trial at any time for various reasons, including a belief that the risks to study subjects outweigh the anticipated benefits.

These limitations present a material risk that FDA or other federal or state law enforcement authorities could determine that the nature and scope of our sales, marketing and/or support activities, though designed to comply with all FDA requirements, constitute the promotion of our products for an unapproved use in violation of the FDCA. We also face the risk that FDA or other governmental authorities might pursue enforcement based on past activities that we have discontinued or changed, including sales activities, arrangements with institutions and doctors, educational and training programs and other activities. Investigations concerning the promotion of unapproved uses and related issues, are typically expensive, disruptive and burdensome and generate negative publicity. If our promotional activities are found to be in violation of the law, we may face significant fines and penalties and may be required to substantially change our sales, promotion, grant and educational activities. There is also a possibility that we could be enjoined from selling some or all of our products for any unapproved use.

Although our Isolator Synergy System and EPi-Sense System have received FDA approval for the treatment of some forms of Afib in certain procedures, we have not received FDA clearance or approval to promote our other products for the treatment of Afib or the prevention of stroke. Unless and until we obtain FDA clearance or approval for the use of our other products to treat Afib or prevent stroke, we, and others acting on our behalf, may not claim in the U.S. that such products are safe and effective for such uses or otherwise promote them for such uses. Similar restrictions also exist outside of the U.S. There is no assurance that future clearances or approvals of our products will be granted or that current or future clearances or approvals will not be withdrawn. Failure to obtain a clearance or approval or loss of an existing clearance or approval, could hurt our ability to maintain and grow our business.

Modifications to our products may require new clearances or approvals or may require us to cease promoting or to recall the modified products until such clearances or approvals are obtained and FDA may not agree with our conclusions regarding whether new clearances or approvals were required.

Any modification to a 510(k)-cleared device that would constitute a change in its intended use, design or manufacture could require a new or supplemental 510(k) clearance or, possibly, submission and FDA approval of a PMA application. FDA requires every medical device company to make the determination as to whether a 510(k) must be filed, but FDA may review any medical device company’s decision. We have made modifications to our products and concluded

that such modifications did not require us to submit a new or supplemental 510(k). FDA may not agree with our decisions regarding whether submissions were required.

If FDA were to disagree with us and require us to submit a 510(k), PMA or a PMA supplement for then-existing modifications, we could be required to cease promoting or to recall the modified product until we obtain clearance or approval. In addition, we could be subject to significant regulatory fines or other penalties. Furthermore, our products could be subject to recall if FDA determines, for any reason, that our products are not safe or effective or that appropriate regulatory submissions were not made. Delays in receipt or failure to receive clearances or approvals, the loss of previously received clearances or approvals or the failure to comply with existing or future regulatory requirements could reduce our sales, profitability and future growth prospects.

If we or our third-party vendors fail to comply with extensive FDA regulations relating to the manufacturing of our products or any component part, we may be subject to fines, injunctions and penalties, and our ability to commercially distribute and sell our products may be hurt.

Our manufacturing facilities and the manufacturing facilities of any of our third-party component manufacturers, critical suppliers or third-party sterilization facilities are required to comply with FDA's QSR, which sets forth minimum standards for the procedures, execution and documentation of the design, testing, production, control, quality assurance, labeling, packaging, sterilization, storage and shipping of the products we sell. FDA may evaluate our compliance with the QSR, among other ways, through periodic announced or unannounced inspections which could disrupt our operations and interrupt our manufacturing. If in conducting an inspection of our manufacturing facilities or the manufacturing facilities of any of our third-party component manufacturers, critical suppliers or third-party sterilization facilities, an FDA investigator observes conditions or practices believed to violate the QSR, the investigator may document their observations on a Form FDA-483 that is issued at the conclusion of the inspection. A manufacturer that receives an FDA-483 may respond in writing and explain any corrective actions taken in response to the inspection observations. FDA will typically review the facility's written response and may re-inspect to determine the facility's compliance with the QSR and other applicable regulatory requirements. Failure to take adequate and timely corrective actions to remedy objectionable conditions listed on an FDA-483 could result in FDA taking administrative or enforcement actions. Among these may be FDA's issuance of a Warning Letter to a manufacturer, which informs the manufacturer that FDA considers the observed violations to be of "regulatory significance" that, if not corrected, could result in further enforcement action. FDA enforcement actions, which include seizure, injunction and criminal prosecution, could result in total or partial suspension of a facility's production and/or distribution, product recalls, fines, suspension of FDA's review of product applications and FDA's issuance of adverse publicity. Thus, an adverse inspection could force a shutdown of our manufacturing operations or a recall of our products. Adverse inspections could also delay FDA approval of our products and could have an adverse effect on our production, sales and financial condition.

We and any of our third-party vendors may also encounter other problems during manufacturing including failure to follow specific protocols and procedures, equipment malfunction and environmental factors, any of which could delay or impede our ability to meet demand. The manufacture of our product also subjects us to risks that could harm our business, including problems relating to the sterilization of our products or facilities and errors in manufacturing components that could negatively affect the efficacy or safety of our products or cause delays in shipment of our products. Any interruption or delay in the manufacture of the product or any of its components could impair our ability to meet the demand of our customers and cause them to cancel orders or switch to competitive products and could, therefore, have a material adverse effect on our business, financial condition and results of operations.

We are currently defending against a lawsuit brought under the False Claims Act, and any adverse finding, judgement, or enforcement action could materially and adversely affect our business, financial condition or results of operations.

As previously disclosed, on December 11, 2017, the Company received a Civil Investigative Demand (CID) from the USDOJ stating that it was investigating the Company to determine whether the Company has violated the False Claims Act, relating to the promotion of certain medical devices related to the treatment of atrial fibrillation for off-label use and submitted or caused to be submitted false claims to certain federal and state health care programs for medically unnecessary healthcare services related to the treatment of Afib. The Company provided the USDOJ with documents and answers to the written interrogatories, and cooperated with the investigation. In 2021, USDOJ informed the Company that the investigation resulted from a lawsuit by a private individual, or "relator", brought on behalf of the United States and various state and local governments under the *qui tam* provisions of the federal and similar state and local laws. Although the USDOJ and all of the state and local governments declined to intervene, the relator continues to pursue the lawsuit. During the third quarter of 2022, the relator filed a Fourth Amended Complaint, which dropped allegations of off-label promotion and now alleges that the Company paid illegal kickbacks to healthcare providers in exchange for using or referring the Company's products, in violation of the federal Anti-Kickback Statute and various comparable state and local

laws. While the Company is contesting the case, it is not possible to predict when the lawsuit will be resolved, the outcome of the lawsuit or its potential impact on the Company. While the Company believes its practices are lawful, there can be no assurance that the lawsuit will not result in findings of violations of federal laws that could lead to the imposition of damages, fines, penalties, restitution, other monetary liabilities, sanctions, settlements or changes to the Company's business practices or operations that could have a material adverse effect on the Company's business, financial condition or results of operations, or eliminate altogether the Company's ability to operate its business.

The use of products we sell may result in injuries or other adverse events that lead to product liability suits, which could be costly to our business or our customers' businesses.

The use of our products may result in a variety of serious complications, including damage to the heart, nerves, internal bleeding, death, paralysis or other adverse events. Serious complications are commonly encountered in connection with surgical procedures. If products we sell are defectively designed, manufactured or labeled, contain inadequate warnings, contain defective components, are misused or are associated with serious injuries or deaths, we may become subject to costly litigation by our customers or their patients. We carry product liability insurance that is limited in scope and amount and may not be adequate to fully protect us against product liability claims. We could be required to pay damages that exceed our insurance coverage, and such amounts could be significant. Any product liability claim, with or without merit, could also result in an increase in our insurance rates or our inability to secure coverage on reasonable terms, if at all. Even in the absence of a claim, our insurance rates may rise in the future. Any product liability claim, even a meritless or unsuccessful one, would be time-consuming and expensive to defend and could result in the diversion of our management's attention from our business and result in adverse publicity, withdrawal of clinical trial participants, injury to our reputation and loss of revenue. Any of these events could negatively affect our financial condition.

Our intellectual property rights may not provide meaningful commercial protection for our products, which could enable third parties to use our technology or methods, or very similar technology or methods, and could reduce our ability to compete.

Our success depends significantly on our ability to protect our proprietary rights to the technologies used in our products. We rely on patent protection, as well as a combination of copyright, trade secret and trademark laws and nondisclosure, confidentiality and other contractual restrictions to protect our proprietary technology. However, these legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep any competitive advantage. Our patent applications may not issue as patents at all or in a form that will be advantageous to us. Our issued patents and those that may be issued in the future may be challenged, invalidated or circumvented, which could limit our ability to stop competitors from marketing related products.

Although we have taken steps to protect our intellectual property and proprietary technology, we cannot assure you that third parties will not be able to design around our patents or, if they do infringe upon our technology, that we will be successful in or will have sufficient resources to pursue a claim of infringement against those third parties. We believe that third parties may have developed or are developing products that could infringe upon our patent rights. Any pursuit of an infringement claim by us may involve substantial expense or diversion of management attention. In addition, although we have generally entered into confidentiality agreements and intellectual property assignment agreements with our employees, consultants, investigators and advisors, such agreements may be breached, may not be enforceable or may not provide meaningful protection for our trade secrets or other proprietary information in the event of unauthorized use or disclosure or other breaches of the agreements. Additionally, as is common in the medical device industry, some of these individuals were previously employed at other medical equipment or biotechnology companies, including our competitors. Although no claims are currently pending against us, we may be subject to claims that these individuals have used or disclosed trade secrets or other proprietary information of their former employers.

The laws of foreign countries may not protect our intellectual property rights to the same extent as the laws of the United States. Foreign countries generally do not allow patents to cover methods for performing surgical procedures. If our intellectual property does not provide significant protection against foreign or domestic competition, any current or future competitors could compete more directly with us, which could result in a decrease in our revenue and market share. All of these factors may harm our competitive position.

The medical device industry is characterized by extensive litigation and administrative proceedings over patent and other intellectual property rights and any litigation or claim against us may cause us to incur substantial costs, could place a significant strain on our financial resources, divert the attention of management from our business and harm our reputation.

Despite measures taken to protect our intellectual property, unauthorized parties might copy aspects of our products or obtain and use information that we regard as proprietary. Whether a product infringes a patent involves complex legal and factual issues, the determination of which is often uncertain. Any patent dispute, even one without merit or an unsuccessful one, would be time-consuming and expensive to defend and could result in the diversion of our management's attention from our business and result in adverse publicity, the disruption of development and marketing efforts, injury to our reputation and loss of revenue. Litigation also puts our patent applications at risk of being rejected and our patents at risk of being invalidated or interpreted narrowly and may provoke third parties to assert claims against us. Any of these events could negatively affect our financial condition.

In the event of a patent dispute, if a third party's patents were upheld as valid and enforceable, and we were found to be infringing, or found to be inducing infringement by others, we could be prevented from selling our products unless we were able to obtain a license to use technology or ideas covered by such patent or are able to redesign our system to avoid infringement, or we may be ordered to pay substantial damages to the patent holders. A license may not be available at all or on terms acceptable to us, and we may not be able to redesign our products to avoid any infringement. Modification of our products or development of new products could require us to conduct additional clinical trials and to revise our filings with FDA and other regulatory bodies, which would be time-consuming and expensive. If we are not successful in obtaining a license or redesigning our products, we may be unable to sell our products and our business could suffer.

We sell our products outside of the United States, and we are subject to various regulatory and other risks relating to international operations, which could harm our revenue and profitability.

Doing business outside of the United States exposes us to risks distinct from those we face in our domestic operations. For example, our operations outside of the United States are subject to different regulatory requirements in each jurisdiction where we operate or have sales. Our failure, or the failure of our distributors, to comply with current or future foreign regulatory requirements, or the assertion by foreign authorities that we or our distributors have failed to comply, could result in adverse consequences, including enforcement actions, fines and penalties, recalls, cessation of sales, civil and criminal prosecution, and the consequences could be disproportionate to the relative contribution of our international operations to our results of operations. Moreover, if political or economic conditions deteriorate in these countries, or if any of these countries are affected by a natural disaster or other catastrophe, our ability to conduct our international operations or collect on international accounts receivable could be limited and our costs could be increased, which could negatively affect our operating results. Engaging in business outside of the United States inherently involves a number of other difficulties and risks, including, but not limited to:

- export restrictions and controls relating to technology;
- pricing pressure that we may experience internationally;
- difficulties in enforcing agreements and collecting receivables through certain foreign legal systems;
- political and economic instability;
- consequences arising from natural disasters and other similar catastrophes, such as hurricanes, tornados, earthquakes, floods and tsunamis;
- potentially adverse tax consequences, tariffs and other trade barriers;
- the need to hire additional personnel to promote our products outside of the United States;
- international terrorism and anti-American sentiment;
- fluctuations in exchange rates for future sales denominated in foreign currency, which represent a portion of our sales outside of the United States; and
- difficulty in obtaining and enforcing intellectual property rights.

Our exposure to each of these risks may increase our costs and require significant management attention. We cannot assure you that one or more of these factors will not harm our business.

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.

Our business practices in foreign countries must comply with anti-corruption laws, including the Foreign Corrupt Practices Act (FCPA), the UK Anti-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.

We have a compliance program in place designed to reduce the likelihood of potential violations of the FCPA and other U.S. and foreign anti-bribery and anti-corruption laws. 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 successor liability FCPA violations or violations of other anti-corruption laws committed by companies in which we invest or that we acquired or will acquire.

Compliance with developing European Union medical device regulations may limit our ability to maintain sales of our products in European markets or to introduce new products into European markets.

Many foreign countries where we market or may market our products have regulatory bodies and restrictions similar to those of FDA. International sales are subject to foreign government regulation, the requirements of which vary substantially from country to country. The time required to obtain approval by a foreign country may be longer or shorter than that required for FDA clearance and the requirements may differ. In particular, marketing of medical devices in the EU is subject to compliance with the Medical Device Directive 93/92/EEC (MDD). A medical device may be placed on the market within the EU only if it conforms to certain “essential requirements” and bears the CE Mark. The most fundamental and essential requirement is that a medical device must be designed and manufactured in such a way that it will not compromise the clinical condition or safety of patients, or the safety and health of users and others. In addition, the device must achieve the essential performance intended by the manufacturer and be designed, manufactured and packaged in a suitable manner.

In May 2017, the EU adopted a new Medical Device Regulation (EU) 2017/745 (MDR), which repealed and replaced the MDD effective May 26, 2021. The MDR clearly envisages, among other things, stricter controls of medical devices, including strengthening of the conformity assessment procedures, increased expectations with respect to clinical data for devices and pre-market regulatory review of high-risk devices. The MDR also envisages greater control over notified bodies and their standards, increased transparency, more robust device vigilance requirements and clarification of the rules for clinical investigations. Under transitional provisions, medical devices with notified body certificates issued under the MDD prior to May 26, 2021 may continue to be placed on the market for the remaining validity of the certificate, until May 26, 2024 at the latest. After the expiry of any applicable transitional period, only devices that have been CE marked under the MDR may be placed on the market in the EU. If we fail to comply with the new MDR, we may not be able to continue to sell existing products in the EU or introduce new products for sale in the EU, either of which could materially harm our results of operations and financial condition.

Financial Risks

Our quarterly financial results are likely to fluctuate significantly because our sales prospects are uncertain.

Due to differing rates of adoption of our devices, our quarterly operating results may fluctuate significantly. Current worldwide economic conditions, natural disasters and other factors discussed in this “Risk Factors” section also may

impact our sales results, causing our quarterly operating results to be difficult to predict and may fluctuate significantly from quarter to quarter or from prior year to current year periods. These fluctuations may also affect our annual operating results and may cause those results to fluctuate unexpectedly from year to year.

We have a history of net losses, and we may never become profitable.

Even though we reported net income of $50,199 in 2021, we have a history of net losses, including net losses of $46,466 in 2022, and $48,155 in 2020. As of December 31, 2022, we had an accumulated deficit of $326,619.

Our net losses have resulted principally from costs and expenses relating to sales, training and promotional efforts, research and development, clinical trials, seeking regulatory clearances and approvals and general operating expenses. We expect to continue to incur substantial expenditures and to potentially incur additional operating losses in the future as we further develop and commercialize our products. If sales of our products do not continue to grow as we anticipate, we may not be able to achieve profitability. Our expansion efforts may prove to be more expensive than we currently anticipate, and we may not succeed in increasing our revenue sufficiently to offset these higher expenses. Our losses have had, and are expected to continue to have, an adverse impact on our working capital, total assets and accumulated deficit.

Our federal tax net operating loss (NOL) and general business credit carryforwards generated or acquired may expire or will be limited because we experienced an ownership change of more than 50 percent, which could result in greater future income tax expense and adversely impact future cash flows.

Section 382 of the Internal Revenue Code of 1986 imposes limitations (Section 382 limitation) on a company's ability to use net operating loss and general business credit carryforwards if a company experiences a more-than-50-percent ownership change over a three-year testing period. Additionally, in connection with acquisitions, acquired NOLs are also subject to Section 382 limitation. The Section 382 limitations could limit the availability of our net operating loss and general business credit carryforwards to offset any future taxable income, which may increase our future income tax expense and adversely impact future cash flows. Federal net operating losses generated prior to 2018 are also subject to expiration under current IRS regulations. We have total federal income tax net operating loss carryforwards that began to expire in 2020 and federal and state research and development credit carryforwards that began to expire in 2022. We have available federal net operating loss and research and development credit carryforwards, subject to expiration, of $331,169 and $13,205 as of December 31, 2022. We also have various state net operating losses and research and development credit carryforwards with varying expirations.

Governmental authorities may question our intercompany transfer pricing policies or change their laws in a manner that could increase our effective tax rate or otherwise harm our business.

As a U.S. company doing business in international markets through subsidiaries, we are subject to foreign tax and intercompany transfer pricing laws, including those relating to the flow of funds between the parent and subsidiaries. If tax authorities challenge our intercompany transfer pricing, our operations may be negatively impacted and our effective tax rate may increase. Tax rates vary from country to country and if regulators determine that our profits in one jurisdiction should be increased, we might not be able to fully offset any associated increase in tax expense in the other jurisdiction, which would increase our effective tax rate. Additionally, the Organization for Economic Cooperation and Development, or OECD, has issued certain proposed guidelines regarding base erosion and profit sharing including minimum taxation. As these guidelines are formally adopted by the OECD, it is possible that separate taxing jurisdictions in which we operate may also adopt some form of these guidelines. In such case, we may need to change our approach to intercompany transfer pricing in order to maintain compliance under the new rules. Our effective tax rate may increase or decrease, including changes in minimum taxation, depending on the current location of global operations at the time of the change. Finally, we might not always be in compliance with all applicable customs, exchange control, value added tax and transfer pricing laws despite our efforts to be aware of and to comply with such laws. In such case, we may need to adjust our operating procedures and our business could be adversely affected.

If our goodwill becomes impaired, it could materially reduce the value of our assets and reduce our net income or increase our net loss for the year in which the impairment occurs.

As of December 31, 2022, we had $234,781 in goodwill related to acquisitions, which represents the purchase price we paid in excess of the fair value of the net assets we acquired. The Financial Accounting Standards Board's (FASB) Accounting Standards Codification (ASC) 350, "Goodwill and Other Intangible Assets" requires that goodwill be tested for impairment at least annually (absent any impairment indicators). We may have future impairment adjustments to our recorded goodwill. Any finding that the value of our goodwill has been impaired would require us to record an impairment

charge which could materially reduce the value of our assets and reduce our net income or increase our net loss for the year in which the impairment charge occurs and increase our accumulated deficit.

An inability to forecast future revenue or estimate life cycles of products may result in inventory-related charges that would negatively affect our gross margins and results of operations.

To mitigate the risk of supply interruptions, we may choose to maintain additional inventory of our products or component parts. Managing our inventory levels is important to our cash position and results of operations and is challenging in the current economic environment. As we grow and expand our product offerings, managing our inventory levels becomes more difficult, particularly as we expand into new product areas and bring product enhancements to market. While we rely on our personnel and information technology systems for inventory management, our personnel and information technology systems may fail to adequately perform these functions or may experience an interruption. An excessive amount of inventory reduces our cash available for operations and may result in excess or obsolete materials. Conversely, inadequate inventory levels may make it difficult for us to meet customer product demand, resulting in decreased revenue. An inability to forecast future revenue or estimated life cycles of products may result in inventory-related charges that would negatively affect our gross margins and results of operations and increase our accumulated deficit.

We are subject to credit risk from our accounts receivable related to our sales, which include sales into countries outside the United States that may experience economic turmoil.

The majority of our accounts receivable arise from sales in the United States. However, we also have significant receivable balances from customers within the European Union and Asia. Our accounts receivable in the United States are primarily due from public and private hospitals. Our accounts receivable outside the United States are primarily due from public and private hospitals and from independent distributors. Our historical write-offs of accounts receivable have not been significant. We monitor the financial performance and credit worthiness of our customers so that we can properly assess and respond to changes in their credit profile. Our independent distributors operate in certain countries where economic conditions continue to present challenges to their businesses, and, thus, could place the amounts due to us at risk. These distributors are owed amounts from public hospitals that are funded by their governments. Adverse financial conditions in these countries may negatively affect the length of time that it will take us to collect associated accounts receivable or impact the likelihood of ultimate collection.

We may be unable to comply with the covenants of our Loan Agreement.

Our Loan Agreement with Silicon Valley Bank ("SVB") contains a minimum liquidity covenant, dividend restrictions and other customary terms and conditions. The occurrence of an event of default could result in an increase to the applicable interest rate by 3.0%, an acceleration of all obligations, an obligation to repay all obligations in full and a right by SVB to exercise all remedies available to them. If we are unable to pay those amounts, SVB could proceed against the collateral granted to it pursuant to the Loan Agreement, and we may in turn lose access to our current source of borrowing availability.

Common Stock Risks

We may fail to meet our publicly announced guidance or other expectations about our business and future operating results, which could cause a decline in our stock price.

We provide financial guidance about our business and future operating results. In developing this guidance, our management makes certain assumptions and judgments about our future operating performance, including rate of adoption of our products, projected hiring to support our growth, continued increase of our market share, potential impact from competitive devices and therapies, and stability of the macro-economic environment in our key markets. Furthermore, analysts and investors may develop and publish their own projections of our business, which may form a consensus about our future performance. Our business results may vary significantly from such guidance or that consensus due to a number of factors, many of which are outside of our control, and which could adversely affect our operations and operating results. Furthermore, if we make downward revisions of our previously announced guidance, or if our publicly announced guidance of future operating results fails to meet expectations of securities analysts, investors, or other interested parties, the market price of our common stock could decline.

Securities analysts may not continue, or additional securities analysts may not initiate, coverage for our common stock or may issue negative reports. This may have a negative impact on the market price of our common stock.

Several securities analysts provide research coverage of our common stock. Some analysts have already published statements that do not portray our technology, products or procedures using our products in a positive light and others may do so in the future. If we are unable to educate those who publicize such reports about the benefits we believe our business provides, or if one or more of the analysts who elects to cover us downgrades our stock, our stock price would likely decline rapidly. If one or more of these analysts ceases coverage of our company, we could lose visibility in the market, which in turn could cause our stock price to decline. The trading market for our common stock may be affected in part by the research and reports that industry or financial analysts publish about us, our business or our markets. If sufficient securities analysts do not cover our common stock, the lack of research coverage may adversely affect the market price of our common stock. It may be difficult for companies such as ours, with a smaller market capitalization, to attract and maintain sufficient independent financial analysts that will cover our common stock. This could have a negative effect on the market price of our stock.

The price and trading volume of our common stock may experience extreme fluctuations and our stockholders could lose some or all of their investment.

Because we operate within the medical device segment of the healthcare industry, our stock price is likely to be volatile. The market price of our common stock may have and has had a history of substantial fluctuation due to a variety of factors, including, but not limited to those risk factors described in the "Risk Factors" section herein. These factors, some of which are not within our control, may cause the price of our stock to fluctuate substantially. We believe the quarterly and annual comparisons of our financial results are not necessarily meaningful and should not be relied upon as an indication of our future performance.

The market prices of the securities of medical device companies, particularly companies like ours without consistent revenue and earnings, have been highly volatile and are likely to remain highly volatile in the future. This volatility has often been unrelated to the operating performance of these particular companies. In the past, companies that experience volatility in the market price of their securities have often faced securities class action litigation. Whether or not meritorious, litigation brought against us could result in substantial costs, divert our management's attention and resources and harm our ability to grow our business.

The sale of material amounts of common stock could encourage short sales by third parties and depress the price of our common stock. As a result, our stockholders may lose all or part of their investment.

The downward pressure on our stock price caused by the sale of a significant number of shares of our common stock or the perception that such sales could occur by any of our significant stockholders could cause our stock price to decline, thus allowing short sellers of our stock an opportunity to take advantage of any decrease in the value of our stock. The presence of short sellers in our common stock may further depress the price of our common stock. Some of our directors and executive officers have entered into, or may enter into, Rule 10b5-1 trading plans pursuant to which they may sell shares of our stock from time to time in the future. Actual or potential sales by these insiders, including those under a prearranged Rule 10b5-1 trading plan, could be interpreted by the market as an indication that the insider has lost confidence in our stock and adversely impact the market price of our stock.

Sales of common stock by us in a capital raising transaction or our issuances of shares in an acquisition may dilute stockholder ownership of common stock and cause a decline in the market price of our common stock.

We may need to raise capital in the future to fund our operations or new initiatives or reduce or pay in full our indebtedness. If we raise funds by issuing equity securities, our stock price may decline and our existing stockholders may experience significant dilution. Furthermore, we may enter into capital raising transactions or issue shares in acquisitions at prices that represent a substantial discount to market price. A negative reaction by investors and securities analysts to any sale of our equity securities could result in a decline in the trading price of our common stock.

Anti-takeover provisions in our amended and restated certificate of incorporation and amended and restated bylaws and under Delaware law could inhibit a change in control or a change in management that stockholders consider favorable.

Provisions in our certificate of incorporation and bylaws could delay or prevent a change of control or change in management that would provide a premium to the market price of common stock. These provisions include those:

- authorizing the issuance without further approval of "blank check" preferred stock that could be issued by our board of directors to increase the number of outstanding shares and thwart a takeover attempt;
- prohibiting cumulative voting in the election of directors, which would otherwise allow less than a majority of stockholders to elect director candidates;
- limiting the ability of stockholders to call special meetings of stockholders;
- prohibiting stockholder action by written consent, thereby requiring all stockholder actions to be taken at a meeting of stockholders; and
- establishing advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted upon by stockholders at stockholder meetings.

In addition, Section 203 of the Delaware General Corporation Law limits business combination transactions with 15% stockholders that have not been approved by our board of directors. These provisions and others could make it difficult for a third party to acquire us, or for members of our board of directors to be replaced, even if doing so would be beneficial to our stockholders. Because our board of directors is responsible for appointing the members of our management team, these provisions could, in turn, affect any attempt to replace the current management team. If a change of control or change in management is delayed or prevented, stockholders may lose an opportunity to realize a premium on shares of common stock or the market price of our common stock could decline.

We do not expect to pay dividends in the foreseeable future. As a result, stockholders must rely on stock appreciation for any return on investment.

We do not anticipate paying cash dividends on our common stock in the foreseeable future. Any payment of cash dividends will also depend on our financial condition, results of operations, capital requirements and other factors and will be at the discretion of our board of directors. Accordingly, stockholders will have to rely on capital appreciation, if any, to earn a return on investment in our common stock. Furthermore, pursuant to our credit facility, we are currently subject to restrictions on our ability to pay dividends and we may in the future become subject to other contractual restrictions on, or prohibitions against, the payment of dividends.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

The Company operates in the following principal locations:

- AtriCure Corporate Headquarters Campus; Mason, Ohio – This campus encompasses three locations in Mason, Ohio, including our global headquarters facility that contains the Company's administrative, clinical, regulatory, engineering, product development, distribution and manufacturing functions. The headquarters facility is approximately 92,000 square feet. The Mason South facility is primarily used for warehousing and distribution activities and is approximately 40,000 square feet. The Mason Manufacturing Building, opened during 2022, is approximately 37,000 square feet and when qualified will be used for manufacturing and engineering activities.
- Minnetonka, Minnesota – This location includes administrative, clinical, regulatory and product development space. The office is approximately 32,000 square feet.
- Pleasanton, California – This location is used for product development activities and is approximately 6,000 square feet.
- Amsterdam, Netherlands – This location houses administrative functions for our international operations. The space is approximately 9,000 square feet.

The Company believes that its existing facilities are adequate to meet its immediate needs and that suitable additional space will be available in the future on commercially reasonable terms as needed.

ITEM 3. LEGAL PROCEEDINGS

We may from time to time become a party to additional legal proceedings that arise in the ordinary course of business. See Note 10 – Commitments and Contingencies to our Consolidated Financial Statements.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

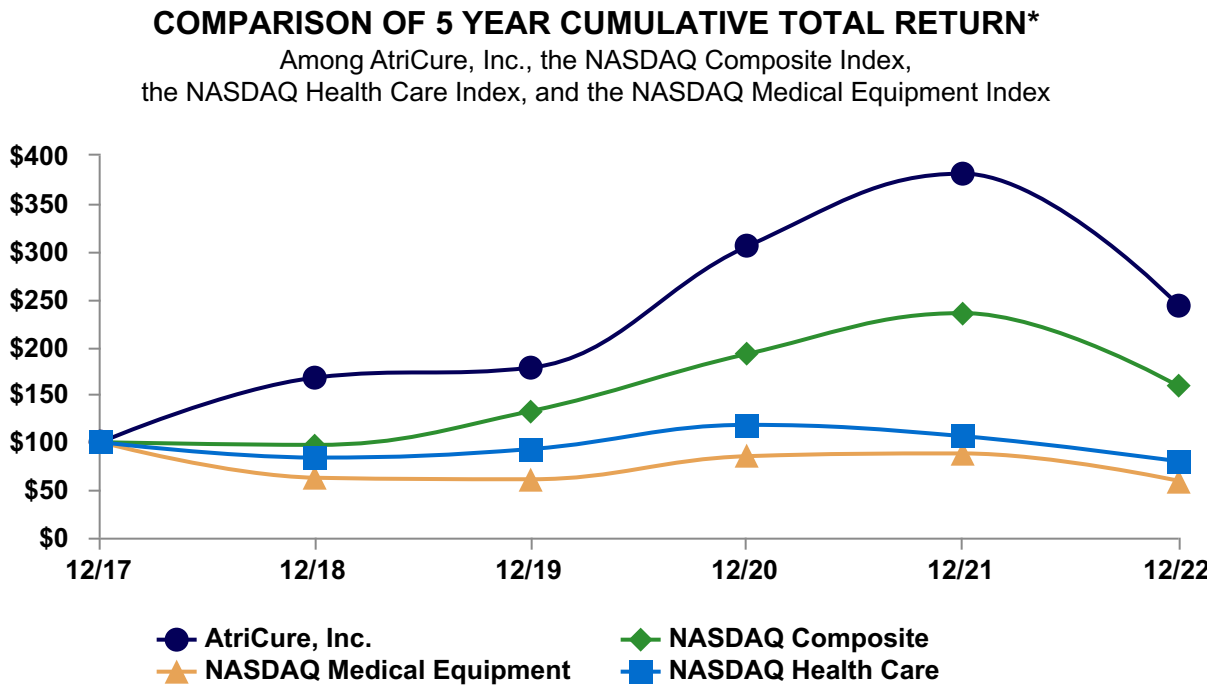
ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Common Stock Market Price

Our common stock is traded on the NASDAQ Global Market under the symbol "ATRC". As of February 17, 2023, the closing price of our common stock on the NASDAQ Global Market was $40.34 per share, and the number of stockholders of record was 73.

Performance Graph

The following graph compares the cumulative total stockholder return on our common stock with the cumulative total return of the NASDAQ Composite Index ("NASDAQ Composite"), the NASDAQ Health Care Index ("NASDAQ Health Care") and the NASDAQ Medical Equipment Index ("NASDAQ Medical Equipment") for the period beginning on December 31, 2017 and ending on December 31, 2022.



*$100 invested on 12/31/17 in stock or index, including reinvestment of dividends. Fiscal year ending December 31.

This graph assumes that $100.00 was invested on December 31, 2017 in our common stock, the NASDAQ Composite Index, the NASDAQ Medical Equipment Index, and the NASDAQ Health Care Index, and that all dividends are reinvested. No dividends have been declared or paid on our common stock. Stock performance shown in the above chart for our common stock is historical and should not be considered indicative of future price performance. Effective December 31, 2022, we have ceased use of the NASDAQ Medical Equipment Index and transitioned to use of the NASDAQ Health Care Index for the comparison. We believe the NASDAQ Health Care Index to be a more appropriate index for this comparison, as it is more accessible to stockholders than the NASDAQ Medical Equipment Index and is widely recognized and used.

	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
AtriCure, Inc.	$ 167.76	$ 178.23	$ 305.21	$ 381.20	$ 243.31
NASDAQ Composite	$ 97.16	$ 132.81	$ 192.47	$ 235.15	$ 158.65
NASDAQ Health Care	$ 83.86	$ 92.88	$ 118.12	$ 106.27	$ 79.91
NASDAQ Medical Equipment	$ 62.72	$ 61.17	$ 85.34	$ 88.20	$ 59.54

ITEM 6. [RESERVED]

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

(Dollar and share amounts referenced in this Item 7 are in thousands, except per share amounts.)

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the accompanying Consolidated Financial Statements and notes thereto contained in Item 8, "Financial Statements and Supplementary Data," to provide an understanding of our results of operations, financial condition and cash flows. This section of this Form 10-K generally discusses 2022 and 2021 items and year-to-year comparisons between 2022 and 2021. This discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. The actual results may differ from those anticipated in these forward-looking statements as a result of many factors, including but not limited to those set forth under Item 1A "Risk Factors," the cautionary statement regarding forward-looking statements at the beginning of Part I and elsewhere in this Form 10-K.

Year Ended December 31, 2021 compared to December 31, 2020

For a comparison of our results of operations for the years ended December 31, 2021 and December 31, 2020, 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 year ended December 31, 2021, filed with the SEC on February 17, 2022.

Overview

We are a leading innovator in treatments for atrial fibrillation (Afib), left atrial appendage (LAA) management and post-operative pain management. Our ablation and left atrial appendage management (LAAM) products are used by physicians during both open-heart and minimally invasive procedures. In open-heart procedures, physicians are typically performing heart surgery for other conditions, and our products are used in conjunction with (or "concomitant" to) such a procedure. Minimally invasive procedures are performed on a standalone basis, and often include multi-disciplinary or "hybrid" approaches, combining surgical procedures using AtriCure ablation and AtriCure LAAM products with catheter ablation procedures performed by an electrophysiologist. Our pain management device is used by physicians to freeze nerves during cardiothoracic or thoracic surgical procedures. We anticipate that substantially all of our revenue for the foreseeable future will relate to products we currently sell or are in the process of developing.

We sell our products to medical centers through our direct sales force in the United States and in certain international markets, such as Germany, France, the United Kingdom, Australia and the Benelux region. We also sell our products to distributors who in turn sell our products to medical centers in Japan, China and other international markets. Our business is primarily transacted in U.S. Dollars; direct sales transactions outside the United States are transacted in Euros, British Pounds or Australian Dollars.

During 2022, we continued to experience variability in demand for our products as non-emergent procedures were deferred in order to preserve resources for COVID-19 patients and caregivers, and hospital staffing was impacted by the pandemic and related factors. Beginning in the second quarter, many regions began to stabilize with overall improvements in procedure volume. We expect some variability to continue as we operate in many geographic regions with diverse restrictions that are impacted as new variants of the virus emerge and hospital staffing constraints continue to impact allocation of resources. Despite the challenging environment resulting from the pandemic, we reported annual revenues of $330,379 for the year ended December 31, 2022, an increase of 20.4% when compared to our prior year as a result of growing adoption across key product lines. We continue to build on our strategic initiatives of product innovation, investing in clinical science and providing superior training and education.

PRODUCT INNOVATION. In April 2022, we launched our EnCompass® clamp, following the July 2021 510(k) clearance for ablation of cardiac tissue during cardiac surgery. The EnCompass clamp marks innovation in our core open ablation market, and is expected to drive deeper penetration of cardiac surgery procedures. During September 2022, we received final labeling approval for the next generation EPi-Sense ST device and began a limited launch evaluation in the fourth quarter.

CLINICAL SCIENCE. We continue to invest in studies to expand labeling claims, support indications for the treatment of Afib and other arrhythmias and stroke, and gather clinical data regarding our products.

HEAL-IST. In February 2022, FDA approved the protocol for the Hybrid Epicardial and Endocardial Sinus Node Sparing Ablation Therapy for Inappropriate Sinus Tachycardia (IST) clinical trial (HEAL-IST). The HEAL-IST clinical trial is designed to study the safety and efficacy of a hybrid sinus node sparing ablation procedure using the Isolator Synergy Surgical Ablation System for the treatment of symptomatic, drug refractory or drug intolerant IST. The trial is a

prospective, multicenter, single arm trial that evaluates safety 30 days post-procedure and evaluates primary effectiveness of freedom from IST (as specified) at 12 months post-procedure. The trial provides for enrollment of up to 142 patients at up to 40 sites in the United States, United Kingdom and European Union. The first patient enrollment in the trial occurred in June 2022; site initiation and enrollment is ongoing.

LeAAPS. In April 2022, FDA approved the protocol for the Left Atrial Appendage Exclusion for Prophylactic Stroke Reduction (LeAAPS) IDE clinical trial. The trial is designed to evaluate the effectiveness of prophylactic LAA exclusion using the AtriClip LAA Exclusion System for the prevention of ischemic stroke or systemic arterial embolism in cardiac surgery patients without pre-operative AF diagnosis who are at risk for these events. This prospective, multicenter, randomized trial evaluates safety at 30 days post-procedure to demonstrate no increased risk with LAA exclusion during cardiac surgery, and efficacy over a minimum follow-up of five years post procedure. The trial provides for enrollment of up to 6,500 subjects at up to 250 sites worldwide. In January 2023, we announced first patient enrollment in the trial; site initiation and enrollment is ongoing.

TRAINING. Our professional education and marketing teams conduct virtual, in-person and mobile training for physicians and healthcare professionals, as well as our sales teams. Our training methods ensure invaluable access to continuing education and awareness of our products and related procedures. The 2021 FDA approval of the EPi-Sense System has enabled us to educate and train physicians on the benefits of Hybrid AF therapy in treating long-standing persistent Afib patients. Our Advanced Hybrid Ablation Training Courses are co-sponsored by the Heart Rhythm Society (HRS).

Results of Operations

Year Ended December 31, 2022 compared to December 31, 2021

The following table sets forth, for the periods indicated, our results of operations expressed as dollar amounts and as percentages of total revenue:

	Year Ended December 31,			
	2022		2021	
	Amount	% of Revenue	Amount	% of Revenue
Revenue	$ 330,379	100.0 %	274,329	100.0 %
Cost of revenue	84,439	25.6	68,469	25.0
Gross profit	245,940	74.4	205,860	75.0
Operating expense (benefit):				
Research and development expenses	57,337	17.4	48,506	17.7
Selling, general and administrative expenses	231,272	70.0	204,649	74.6
Change in fair value of contingent consideration	—	—	(184,800)	(67.4)
Intangible asset impairment	—	—	82,300	30.0
Total operating expenses	288,609	87.4	150,655	54.9
(Loss) income from operations	(42,669)	(12.9)	55,205	20.1
Other expense, net	(3,529)	(1.1)	(4,818)	(1.8)
(Loss) income before income tax expense	(46,198)	(14.0)	50,387	18.4
Income tax expense	268	0.1	188	0.1
Net (loss) income	$ (46,466)	(14.1) %	$ 50,199	18.3 %

Revenue. The following table sets forth, for the periods indicated, our revenue by product type and geography expressed as dollar amounts and the corresponding change in such revenues between periods, in both dollars and percentages:

	Year Ended December 31,		Change	
	2022	2021	Amount	%
Open ablation	$ 86,119	$ 72,396	$ 13,723	19.0 %
Minimally invasive ablation	38,553	39,380	(827)	(2.1) %
Pain management	39,974	22,787	17,187	75.4 %
Appendage management	112,555	94,568	17,987	19.0 %
Total United States	$ 277,201	$ 229,131	$ 48,070	21.0 %
Total International	53,178	45,198	7,980	17.7 %
Total Revenue	$ 330,379	$ 274,329	$ 56,050	20.4 %

Worldwide revenue increased 20.4% (21.8% on a constant currency basis). Throughout the United States market, cardiac surgery volumes recovered and product adoption continued. Our Isolator Synergy System continued to generate the majority of our ablation-related revenue. Key drivers of growth included the AtriClip® Flex-V® device within the appendage management franchise, the cryoSPHERE® probe for pain management, and the 2022 launch of the EnCompass clamp in open ablation. Minimally invasive ablation sales decreased as declines in legacy product sales outpaced growth in Hybrid AF therapy procedures using the EPi-Sense system. International revenue increased 17.7% (25.7% on a constant currency basis) throughout our major European and Asia markets. Similar to the Unites States, International revenue growth was driven by appendage management, open ablation and pain management products, while minimally invasive ablation sales declined due to reduction in revenues from legacy products exceeding the growth in Hybrid AF therapy procedures using the EPi-Sense system.

Revenue reported on a constant currency basis is a non-GAAP measure and is calculated by applying previous period foreign currency (Euro) exchange rates, which are determined by the average daily Euro to Dollar exchange rate, to each of the comparable periods. Revenue is analyzed on a constant currency basis to better measure the comparability of results between periods. Because changes in foreign currency exchange rates have a non-operating impact on revenue, we believe that evaluating growth in revenue on a constant currency basis provides an additional and meaningful assessment of revenue to both management and investors.

Cost of revenue and gross margin. Cost of revenue increased $15,970 primarily reflecting revenue growth. The gross margin decrease of approximately 60 basis points was driven by inflationary and supply chain pressures and a shift in product mix to lower margin products, partially offsetting the benefit from higher volume.

Research and development expenses. Research and development expenses increased $8,831, or 18.2%. We expanded our product development, regulatory and clinical teams throughout 2022, resulting in additional $4,551 personnel costs including variable compensation, travel and share-based compensation. Product development project spend increased $1,053 as we continue to evolve our product pipeline. Clinical activities, regulatory submissions and consulting expenses, including compliance with EU MDR, drove $1,944 incremental costs, while amortization expense increased $820 following the April 2021 PMA of the CONVERGE IDE clinical trial. See Note 4 of the Consolidated Financial Statements for further discussion.

Selling, general and administrative expenses. Selling, general and administrative expenses increased $26,623, or 13.0%. Higher headcount and rising travel expenses contributed $18,575 increase in personnel costs. Our commitment to physician training and return to in-person meetings, trade shows and marketing activities drove a $5,007 increase in expenses as compared to the prior year. Other administrative and operating expenses increased $3,114, largely for legal activity and information technology costs.

Change in fair value of contingent consideration. The credit to operating expenses during the year ended December 31, 2021 reflects a change in the forecasted timing and probability of achievement of the regulatory and reimbursement milestones related to the aMAZE clinical trial. See Note 2 of the Consolidated Financial Statements for further discussion.

Impairment of intangible assets. During the year ended December 31, 2021, the Company recorded an impairment charge for the IPR&D asset associated with the aMAZE PMA. See Note 4 of the Consolidated Financial Statements for further discussion.

Other income and expense. Other income and expense consists primarily of net interest expense and foreign currency transaction gains and losses. Net interest expense was $2,992 for 2022 and $4,452 for 2021. The decrease in net interest expense was driven by higher interest income from funds received for interest on past due trade receivables.

Liquidity and Capital Resources

As of December 31, 2022, we had cash, cash equivalents and investments of $172,622 and borrowing capacity of approximately $28,750. All cash equivalents and investments and most of our operating cash are held in United States financial institutions. A minor portion of our cash is held in foreign banks to support our international operations. We had net working capital of $156,822 and an accumulated deficit of $326,619 as of December 31, 2022.

Uses of liquidity and capital resources. Our executive officers and Board of Directors review our funding sources and future capital requirements in connection with our annual operating plan and periodic updates to the plan. Our future capital requirements depend on a number of factors, including, without limitation: market acceptance of our current and future products; costs to develop and support our products, including clinical evidence needs; future expenses to expand and support our sales, training and marketing efforts; operating and filing costs relating to changes in regulatory policies or laws; costs for clinical trials and to secure regulatory approval for new products; legal defense costs; costs to prosecute, defend and enforce our intellectual property rights; and possible acquisitions and joint ventures, including potential business integration costs. Our principal cash requirements include costs of operations, capital expenditures, debt service costs and other contractual obligations.

Credit facility. Our Loan and Security Agreement with Silicon Valley Bank (SVB), as amended, (Loan Agreement), provides for a $60,000 term loan, with an option to make available an additional $30,000 in term loan borrowings, and a $30,000 revolving line of credit. The Loan Agreement has a five year term and expires November 2026. The term loan accrues interest at the Prime Rate plus 1.25% and is subject to an additional 3.00% fee on the term loan principal amount at maturity. Principal payments are to be made ratably commencing 24 months after the inception of the loan through the loan's maturity date. At the option of the Company, the commencement of term loan principal payments may be extended an additional twelve months. As of December 31, 2022, our outstanding debt was $60,000, of which $3,333 is classified as current and $56,667 is classified as noncurrent. We had unused borrowing capacity of approximately $28,750 under our revolving credit facility. For additional information on the terms and conditions, as well as applicable interest and fee payments, see Note 8 - Indebtedness.

Our corporate headquarters lease agreement requires a $1,250 letter of credit which renews annually and remains outstanding as of December 31, 2022.

Capital Expenditures. We incur capital expenditures on an ongoing basis to continue investment in our growth and our ability to better serve our customers. Throughout 2021 and 2022, we expanded our manufacturing operations as we completed the renovation of an additional facility of our Mason, Ohio campus.

Other Contractual Obligations. Our future obligations include both current and long-term obligations. In December 2022, the Company entered into a clinical trial management agreement for the LeAAPS clinical trial. The terms of the agreement require we make milestone payments upon achievement of various enrollment and project milestones over the estimated ten year term, yet the agreement may be terminated early for any reason. Furthermore, we will incur additional variable costs, including pass through costs from clinical trial sites. We expect to disburse between $6,000 and $9,000 of fixed and variable costs based on estimated achievement of milestone payments, site initiation and trial enrollment within the next twelve months. We have operating and finance leases primarily for our corporate offices, manufacturing and warehouse facilities, as well as computer equipment. Our finance leases consist primarily of principal and interest payments related to our Mason, Ohio headquarters. As of December 31, 2022, we have current finance lease obligations of $992 and long-term obligations of $9,147. Our operating leases for office and warehouse space includes current obligations of $1,147 and long-term obligations of $3,095. For additional information, see Note 9 - Leases. We additionally maintain a license agreement with terms that require royalty payments of 5% of specified product sales. See Note 10 - Commitments and Contingencies for information about the terms. We have contractual obligations for contingent consideration payments related to the SentreHEART acquisition. Subject to the terms and conditions of the SentreHEART merger agreement, such contingent consideration would be paid in AtriCure common stock and cash, up to a specified maximum number of shares. The SentreHEART milestones expire on December 31, 2023 and December 31, 2026. As of December 31, 2022, we believe the likelihood of payment is remote, and the estimated fair value of the contingent consideration is $0. See Note 2 – Fair Value.

Sources of liquidity. We believe that our current cash, cash equivalents and investments, along with the cash we expect to generate or use for operations or access via our term loan and revolving line of credit, will be sufficient to meet our anticipated cash needs for working capital and capital expenditures for at least the next twelve months. However, we have on file with the SEC a shelf registration statement which allows us to sell any combination of debt securities, common stock, preferred stock, warrants, depository shares and units in one or more offerings should we choose to do so in the future. We expect to maintain the effectiveness of the shelf registration statement for the foreseeable future.

If our sources of cash are insufficient to satisfy our liquidity requirements, we may seek to sell additional equity or debt securities or obtain a revised or additional credit facility. The sale of additional equity or convertible debt securities could result in dilution to our stockholders. If additional funds are raised through the issuance of debt securities, these securities would have rights senior to those associated with our common stock and could contain covenants that would restrict our operations. Finally, our term loan agreement and revolving line of credit require compliance with certain financial and other covenants. If we are unable to maintain these financing arrangements, we may be required to reduce the scope of our planned research and development, clinical activities and selling, training, education and marketing efforts.

Historical Cash Flow Activity. The following table summarizes our consolidated cash flow activities:

	Years Ended December 31,		
	2022	2021	Change
Net cash used in operating activities	$ (22,141)	$ (13,780)	$ 8,361
Net cash provided by investing activities	44,006	23,504	20,502
Net cash used in financing activities	(7,059)	(7,642)	(583)

Cash flows used in operating activities. Net cash used in operating activities increased $8,361 in 2022 as compared to 2021, largely reflecting the improvement in operating results after non-cash charges of $5,673 offset by an increase in cash needs for working capital and other assets and liabilities of $14,034. Working capital fluctuations are primarily due to the $11,237 reduction in accrued liabilities from higher annual variable compensation payments in 2022 due to improved operating performance in 2021 versus 2020, as well as an increase of $3,031 from our investment in inventories.

Cash flows provided by investing activities. Net cash provided by investing activities increased by $20,502 in 2022 compared to 2021, reflecting higher net sales and maturities of available-for-sale securities of $27,630, offset by an increase of $7,128 for the purchase of property and equipment primarily for the expansion of our manufacturing facilities.

Cash flows used in financing activities. Net cash from financing activities decreased by $583 in 2022 compared to 2021, driven by $1,171 reduced debt fee payments, offset by an $505 increase in net cash used in equity compensation plan activity. Lower stock performance contributed to less proceeds from stock option exercise activity and fewer shares repurchased for payment of taxes for stock awards offset with slight increases in employee stock purchase plan activity.

Inflation

Inflationary pressures may have an adverse impact on our results of operations or financial condition in the foreseeable future. Inflation has impacted our operating costs throughout 2022. Continued increases in our cost of revenue may effect our ability to maintain our gross margin if the selling prices of our products do not increase commensurately, while continued increases in our operating expenses may adversely effect our operating results and the ability to make discretionary investments. We will continue to monitor the impact of inflation on our cost of revenue and operating expenses.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations is based upon our Consolidated Financial Statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of consolidated financial statements requires management to make estimates and judgments that affect the reported amounts of assets and liabilities, revenue and expenses, and disclosures of contingent assets and liabilities at the date of the financial statements. On a periodic basis, we evaluate our estimates, using authoritative pronouncements, historical experience and other assumptions as the basis for making estimates. We have described our significant accounting policies in Note 1 – Description of Business and Summary of Significant Accounting Policies to our Consolidated Financial Statements included in this Form 10-K.

We believe the following critical accounting policies involve a significant level of estimation uncertainty and judgments that are reasonably likely to have a material impact on our Consolidated Financial Statements. We base our

judgments and estimates on historical experience, current conditions and other reasonable factors. Actual results could differ from those estimates under different assumptions or conditions.

***Revenue Recognition*—**Revenue is generated from the sale of medical devices. We recognize revenue in an amount that reflects the consideration we expect to be entitled to in exchange for those devices when control of promised devices is transferred to customers. We account for revenue in accordance with FASB ASC 606, "Revenue from Contracts with Customers". Significant judgments and estimates involved in the Company's recognition of revenue include the estimation of a provision for returns. We estimate the provision for sales returns and allowances using the expected value method based on historical experience and other factors that we believe could impact our expected returns, including defective or damaged products and invoice adjustments. In the normal course of business, we generally do not accept product returns unless a product is defective as manufactured, and we do not provide customers with the right to a refund.

Inventories—Our inventories are stated at the lower of cost or net realizable value based on the first-in, first-out cost method (FIFO) and consist of raw materials, work in process and finished goods. Our industry is characterized by rapid product development and frequent new product introductions. Uncertain timing of product approvals, variability in product launch strategies and variation in product use all impact inventory reserves for excess, obsolete and expired products. An increase to inventory reserves results in a corresponding increase in cost of revenue. Inventories are written off against the reserve when they are physically disposed.

***Share-Based Employee Compensation*—**We estimate the fair value of performance share awards with a performance condition initially based on the closing stock price on the date of grant assuming the performance goal will be achieved. Such performance share awards have specified performance targets based on the compound annual growth rate (CAGR) of our revenue over a three-year performance period. With respect to these performance share awards, the number of shares that vest and are issued to the recipient is based upon revenue performance over the performance period. We may adjust the expense over the performance period based on changes to estimates of performance target achievement. If such goals are not met or service is not rendered for the requisite service period, no compensation cost is recognized, and any recognized compensation cost from prior periods will be reversed.

***Income Taxes*—**Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred income tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred income tax assets and liabilities from changes in tax rates is recognized in the period that includes the enactment date.

Our estimate of the valuation allowance for deferred tax assets requires significant estimates and judgments about our future operating results. Deferred income tax assets are reduced by valuation allowances if, based on the consideration of all available evidence, it is more-likely-than-not that a deferred tax asset will not be realized. Significant weight is given to evidence that can be objectively verified. We evaluate deferred income tax assets on an annual basis to determine if valuation allowances are required by considering all available evidence. Deferred income tax assets are realized by having sufficient future taxable income to allow the related tax benefits to reduce taxes otherwise payable. The sources of taxable income that may be available to realize the benefit of deferred tax assets are future taxable income, future reversals of existing taxable temporary differences, taxable income in prior carryforward years and tax planning strategies that are both prudent and feasible. In evaluating the need for a valuation allowance, the existence of cumulative losses in recent years is significant objectively verifiable negative evidence that must be overcome by objectively-verifiable positive evidence to avoid the need for a valuation allowance. Our valuation allowance offsets substantially all net deferred income tax assets as it is more-likely-than-not that the benefit of such deferred income tax assets will not be recognized in future periods.

Recent Accounting Pronouncements

See Note 1 – Description of Business and Summary of Significant Accounting Policies to the Consolidated Financial Statements in Item 8 of Part II for more information regarding recent accounting pronouncements.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

(Amounts referenced in this Item 7A are in thousands, except per share amounts.)

The Company is exposed to various market risks, which include potential losses arising from adverse changes in market rates and prices, such as foreign exchange fluctuations and changes in interest rates.

Credit and Interest Rate Risk

The Company invests its cash primarily in money market accounts, repurchase agreements, U.S. government and agency obligations, corporate bonds, asset-backed securities and commercial paper. Although the Company believes it has invested in a conservative manner, with preservation being the primary investment objective, the value of the securities held will fluctuate with changes in financial markets including, among other things, changes in interest rates, credit quality and general volatility. This risk is managed by investing in high quality investment grade securities to maintain liquidity and preserve principal without significantly increasing risk.

We are subject to interest rate risk as rate fluctuations impact cash payments for our term loan and revolving credit facility. The term loan accrues interest at a variable rate based on the Prime Rate plus 1.25% and any borrowings under the revolving credit facility bear interest at the Prime Rate.

Financial instruments that potentially subject the Company to credit risk consist of cash equivalents and investments in corporate bonds. Certain of AtriCure's cash and cash equivalents exceed FDIC insured limits or are invested in money market accounts with investment banks that are not FDIC-insured. The Company places its cash and cash equivalents in what it believes to be credit-worthy financial institutions. As of December 31, 2022, $57,849 of the cash and cash equivalents balance was in excess of FDIC limits.

Foreign Currency Exchange Rate Risk

We sell our products to medical centers through our direct sales force in the United States and in certain international markets, such as Germany, France, the United Kingdom, Australia and the Benelux region. We also sell our products to distributors who in turn sell our products to medical centers in Japan, China and other international markets. Our business is primarily transacted in U.S. Dollars; direct sales transactions outside the United States are transacted in Euros, British Pounds or Australian Dollars. Sales to international distributors outside of Europe are under agreements primarily denominated in U.S. dollars. If products are priced in U.S. Dollars and competitors price their products in the local currency, an increase in the relative strength of the U.S. Dollar could result in the Company's price not being competitive in a market where business is not transacted in U.S. Dollars.

Products sold by AtriCure Europe, B.V. are primarily denominated in Euros or British Pounds. Products sold by AtriCure Europe, B.V. accounted for 9.0% and 9.9% of the Company's total revenue for 2022 and 2021. Accordingly, the Company is exposed to exchange rate fluctuations between the Euro and the U.S. Dollar and between the British Pound and the Euro. For 2022 and 2021, foreign currency transaction gains of $559 and $387 were recorded primarily in connection with settlements of the intercompany balances and invoices transacted in British Pounds. For revenue denominated in Euros, if there is an increase in the rate at which Euros are exchanged for U.S. Dollars, it will require more Euros to equal a specified amount of U.S. Dollars than before the rate increase. In such cases, the Company will receive less in U.S. Dollars than was received before the rate increase went into effect. The Euro to U.S. Dollar conversion rate fluctuations may impact our reported revenue and expenses.

In December 2022, we entered into a clinical trial management agreement for the LeAAPS clinical trial. The terms of the agreement require we make fixed milestone payments upon achievement of various enrollment and project milestones over the estimated ten year term. Additional variable costs, including pass through costs incurred at clinical trial sites, will be billed to us by the contracted party. Fixed milestone payments are denominated in Canadian Dollars, while variable pass-through fees incurred at clinical trial sites outside the United States may be billed in U.S. Dollars or other local currencies. Fluctuations in the conversation rates of the U.S. Dollar to the Canadian Dollar and local currencies of international trial sites may impact the cash outlay required for future milestone payments and variable pass-through costs under the clinical trial management agreement.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

ATRICURE, INC. AND SUBSIDIARIES
INDEX TO FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and the Board of Directors of
AtriCure, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of AtriCure, Inc. and subsidiaries (the "Company") as of December 31, 2022 and 2021, the related consolidated statements of operations and comprehensive (loss) income, stockholders' equity, and cash flows, for each of the three years in the period ended December 31, 2022, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022, 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, 2022, 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 22, 2023, 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.

Valuation of Performance Share Awards with a Market Condition - Refer to Note 15 to the financial statements

Critical Audit Matter Description

Performance share awards (PSAs) granted in 2022 have two performance targets measured at the end of the three-year performance period: (i) the Company's revenue compound annual growth rate, a performance condition; and (ii) relative total shareholder return (TSR), a market condition. The performance and market condition payouts are determined independently.

The number of PSAs with a market condition that vest and are issued to the recipient is based upon the Company's TSR relative to the TSR of the selected market index at the end of the three-year performance period. A Monte Carlo simulation was performed to estimate the fair value on the date of grant, with associated share-based compensation expense recognized over the requisite service period as the employee renders service.

The determination of the fair value on the date of grant is affected by the stock price of the Company and the market index, as defined by the award agreement, at the beginning of the service period and grant date, the expected stock price volatility of the Company and the market index over the performance period and the correlation coefficient of the daily returns for the Company and the market index over the performance period.

Given the level of judgment involved by management, including the use of a specialist, to determine the grant date fair value of the PSAs with a market condition, audit procedures required a high degree of auditor judgment and an increased extent of effort, including the need to involve our fair value specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the Company's determination of the grant date fair value of the PSAs with a market condition included the following, among others:

- We inquired of management of the key valuation assumptions and the Monte Carlo simulation methodology used in the determination of the grant date fair value of the PSAs.
- We tested the design and operating effectiveness of the Company's internal controls over the determination of the grant date fair value of the PSAs.
- We tested the accuracy of the data used in measuring the awards by agreeing the underlying inputs, such as grant date, share price, and vesting conditions, among others, back to source documents, such as compensation committee minutes or PSA agreements.
- With the assistance of our fair value specialists, we evaluated management's valuation of PSAs with a market condition by:
    - Evaluating the Monte Carlo simulation methodology and the reasonableness of the valuation assumptions, including the risk-free interest rate, expected volatility, and the correlation coefficients.
    - Independently calculating a fair value estimate for the market condition PSAs using the underlying PSA agreement and independently calculated valuation inputs.

/s/ Deloitte & Touche LLP

Cincinnati, Ohio
February 22, 2023

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

ATRICURE, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
DECEMBER 31, 2022 and 2021
(In Thousands, Except Per Share Amounts)

	2022	2021
Assets		
Current assets:		
Cash and cash equivalents	$ 58,099	$ 43,654
Short-term investments	63,014	75,436
Accounts receivable, less allowance for credit losses of $230 and $1,096	42,693	33,021
Inventories	45,931	38,964
Prepaid and other current assets	5,477	5,001
Total current assets	215,214	196,076
Long-term investments	51,509	104,338
Property and equipment, net	38,833	31,409
Operating lease right-of-use assets	3,787	4,761
Intangible assets, net	39,339	42,992
Goodwill	234,781	234,781
Other noncurrent assets	1,985	955
Total Assets	$ 585,448	$ 615,312
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 19,898	$ 18,597
Accrued liabilities	33,022	36,092
Other current liabilities and current maturities of debt and leases	5,472	1,756
Total current liabilities	58,392	56,445
Long-term debt	56,834	59,741
Finance lease liabilities	9,147	10,082
Operating lease liabilities	3,095	4,068
Other noncurrent liabilities	1,226	1,220
Total Liabilities	128,694	131,556
Commitments and contingencies (Note 10)		
Stockholders' Equity:		
Common stock, $0.001 par value, 90,000 shares authorized; 46,563 and 46,016 issued and outstanding	47	46
Additional paid-in capital	787,422	764,811
Accumulated other comprehensive loss	(4,096)	(948)
Accumulated deficit	(326,619)	(280,153)
Total Stockholders' Equity	456,754	483,756
Total Liabilities and Stockholders' Equity	$ 585,448	$ 615,312

See accompanying notes to consolidated financial statements.

ATRICURE, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE (LOSS) INCOME
YEARS ENDED DECEMBER 31, 2022, 2021 and 2020
(In Thousands, Except Per Share Amounts)

	2022	2021	2020
Revenue	$ 330,379	$ 274,329	$ 206,531
Cost of revenue	84,439	68,469	57,222
Gross profit	245,940	205,860	149,309
Operating expenses (benefit):			
Research and development expenses	57,337	48,506	43,070
Selling, general and administrative expenses	231,272	204,649	150,829
Change in fair value of contingent consideration (Note 2)	—	(184,800)	(357)
Intangible asset impairment (Note 4)	—	82,300	—
Total operating expenses	288,609	150,655	193,542
(Loss) income from operations	(42,669)	55,205	(44,233)
Other income (expense):			
Interest expense	(4,986)	(4,918)	(4,885)
Interest income	1,994	466	1,101
Other	(537)	(366)	(24)
(Loss) income before income tax expense	(46,198)	50,387	(48,041)
Income tax expense	268	188	114
Net (loss) income	$ (46,466)	$ 50,199	$ (48,155)
Net (loss) income per share:			
Basic net (loss) income per share	$ (1.02)	$ 1.11	$ (1.14)
Diluted net (loss) income per share	$ (1.02)	$ 1.09	$ (1.14)
Weighted average shares outstanding:			
Basic	45,740	45,066	42,125
Diluted	45,740	46,039	42,125
Comprehensive (loss) income:			
Unrealized loss on investments	$ (2,811)	$ (941)	$ (46)
Foreign currency translation adjustment	(337)	(319)	516
Other comprehensive (loss) income	(3,148)	(1,260)	470
Net (loss) income	(46,466)	50,199	(48,155)
Comprehensive (loss) income, net of tax	$ (49,614)	$ 48,939	$ (47,685)

See accompanying notes to consolidated financial statements.

ATRICURE, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
YEARS ENDED DECEMBER 31, 2022, 2021, and 2020
(In Thousands)

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity
	Shares	Amount				
Balance—December 31, 2019	39,655	$ 40	$ 529,658	$ (282,197)	$ (158)	$ 247,343
Issuance of common stock through public offering	4,574	5	188,953	—	—	188,958
Issuance of common stock under equity incentive plans	1,013	—	(2,194)	—	—	(2,194)
Issuance of common stock under employee stock purchase plan	104	—	3,330	—	—	3,330
Share-based employee compensation expense	—	—	22,642	—	—	22,642
Other comprehensive income	—	—	—	—	470	470
Net loss	—	—	—	(48,155)	—	(48,155)
Balance—December 31, 2020	45,346	$ 45	$ 742,389	$ (330,352)	$ 312	$ 412,394
Issuance of common stock under equity incentive plans	589	1	(9,837)	—	—	(9,836)
Issuance of common stock under employee stock purchase plan	81	—	4,181	—	—	4,181
Share-based employee compensation expense	—	—	28,078	—	—	28,078
Other comprehensive loss	—	—	—	—	(1,260)	(1,260)
Net income	—	—	—	50,199	—	50,199
Balance—December 31, 2021	46,016	$ 46	$ 764,811	$ (280,153)	$ (948)	$ 483,756
Issuance of common stock under equity incentive plans	426	1	(10,385)	—	—	(10,384)
Issuance of common stock under employee stock purchase plan	121	—	4,225	—	—	4,225
Share-based employee compensation expense	—	—	28,771	—	—	28,771
Other comprehensive loss	—	—	—	—	(3,148)	(3,148)
Net loss	—	—	—	(46,466)	—	(46,466)
Balance—December 31, 2022	46,563	$ 47	$ 787,422	$ (326,619)	$ (4,096)	$ 456,754

See accompanying notes to consolidated financial statements.

ATRICURE, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
YEARS ENDED DECEMBER 31, 2022, 2021 and 2020
(In Thousands)

	2022	2021	2020
Cash flows from operating activities:			
Net (loss) income	$ (46,466)	$ 50,199	$ (48,155)
Adjustments to reconcile net (loss) income to net cash used in operating activities:			
Share-based compensation expense	28,771	28,078	22,642
Depreciation	8,057	7,534	7,866
Amortization of intangible assets	3,653	2,907	1,682
Amortization of deferred financing costs	507	759	509
Amortization of investments	1,478	2,482	1,236
Change in fair value of contingent consideration	—	(184,800)	(357)
Intangible asset impairment	—	82,300	—
Other non-cash adjustments	739	1,607	1,347
Changes in operating assets and liabilities:			
Accounts receivable	(8,989)	(10,087)	5,087
Inventories	(7,305)	(4,274)	(5,265)
Other current assets	(515)	(700)	(477)
Accounts payable	2,677	4,710	(1,560)
Accrued liabilities	(2,966)	8,271	(4,908)
Other noncurrent assets and liabilities	(1,782)	(2,766)	484
Net cash used in operating activities	(22,141)	(13,780)	(19,869)
Cash flows from investing activities:			
Purchases of available-for-sale securities	(24,637)	(173,105)	(227,045)
Sales and maturities of available-for-sale securities	85,524	206,362	75,306
Purchases of property and equipment	(16,881)	(9,753)	(5,259)
Proceeds from capital grant	—	—	800
Net cash provided by (used in) investing activities	44,006	23,504	(156,198)
Cash flows from financing activities:			
Proceeds from sale of stock, net of offering costs of $218	—	—	188,958
Proceeds from debt borrowings	—	5,000	—
Payments on debt and finance leases	(899)	(5,816)	(667)
Payment of debt fees	—	(1,171)	(35)
Proceeds from stock option exercises	1,816	8,175	10,835
Shares repurchased for payment of taxes on stock awards	(12,201)	(18,011)	(13,029)
Proceeds from issuance of common stock under employee stock purchase plan	4,225	4,181	3,330
Net cash (used in) provided by financing activities	(7,059)	(7,642)	189,392
Effect of exchange rate changes on cash and cash equivalents	(361)	(372)	136
Net increase in cash and cash equivalents	14,445	1,710	13,461
Cash and cash equivalents—beginning of period	43,654	41,944	28,483
Cash and cash equivalents—end of period	$ 58,099	$ 43,654	$ 41,944
Supplemental cash flow information:			
Cash paid for interest	$ 4,270	$ 4,223	$ 4,366
Cash paid for income taxes, net of refunds	192	190	217
Non-cash investing and financing activities:			
Accrued purchases of property and equipment	272	1,552	298
Assets obtained in exchange for finance lease obligations	—	—	22

See accompanying notes to consolidated financial statements.

ATRICURE, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In Thousands, Except Per Share Amounts)

1. DESCRIPTION OF BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Nature of the Business—The "Company" or "AtriCure" consists of AtriCure, Inc. and its wholly-owned subsidiaries. The Company is a leading innovator in surgical treatments and therapies for atrial fibrillation (Afib), left atrial appendage (LAA) management and post-operative pain management, and sells its products to medical centers globally through its direct sales force and distributors.

Principles of Consolidation—The Consolidated Financial Statements include the accounts of AtriCure, Inc. and its wholly-owned subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation.

Cash and Cash Equivalents—The Company considers highly liquid investments with maturities of three months or less at the date of purchase as cash equivalents. Cash equivalents include demand deposits, money market funds and repurchase agreements on deposit with financial institutions.

Investments—The Company invests primarily in government and agency obligations, corporate bonds, commercial paper and asset-backed securities and classifies all investments as available-for-sale. Investments maturing in less than one year are classified as short-term investments. Investments are recorded at fair value, with unrealized gains and losses recorded as accumulated other comprehensive income (loss). Gains and losses are recognized using the specific identification method when securities are sold and are included in interest income.

Revenue Recognition—Revenue is generated primarily from the sale of medical devices. Sales of devices are categorized based on the type of product as follows: open ablation, minimally invasive ablation, pain management and appendage management. The Company recognizes revenue when control of promised devices is transferred to customers in an amount that reflects the consideration the Company expects to be entitled to in exchange for those devices. Revenue is recognized at a point in time upon shipment or delivery of products. Shipping and handling activities performed after control transfers to customers are considered activities to fulfill the promise to transfer the products. Revenue includes shipping and handling revenue of $1,496, $1,354 and $1,192 in the years ended December 31, 2022, 2021 and 2020.

Products are sold primarily through a direct sales force and through distributors in certain international markets. Terms of sale are generally consistent for both end-users and distributors, except that payment terms are generally net 30 days for end-users and net 60 days for distributors, with some exceptions. The Company does not maintain any post-shipping obligations to customers; no installation, calibration or testing of products is performed subsequent to shipment in order to render products operational. The Company expects to be entitled to the total consideration for the products ordered as product pricing is fixed and payment terms fall within one year to forgo adjustment for the effects of a significant financing component. The Company excludes taxes assessed by governmental authorities on revenue-producing transactions from the measurement of the transaction price.

Costs associated with product sales include commission expense for product sales and royalties paid for sales of certain products. As revenue from product sales are satisfied at a point in time, commission expense and royalties are incurred at that point in time rather than over time. Commissions are included in selling, general and administrative expenses, while royalties are included in cost of revenue.

Significant judgments and estimates involved in the Company's recognition of revenue include the estimation of a provision for returns. In the normal course of business, the Company generally does not accept product returns unless a product is defective as manufactured. The Company does not provide customers with the right to a refund.

Sales Returns and Allowances—The Company maintains a provision for potential returns of defective or damaged products, and invoice adjustments. The Company adjusts the provision using the expected value method based on historical experience. Increases to the provision reduce revenue, and the provision is included in accrued liabilities.

Allowance for Credit Losses on Accounts Receivable—The Company evaluates expected credit losses on accounts receivable, considering historical credit losses, current customer-specific information and other relevant factors when determining the allowance. An increase to the allowance for credit losses results in a corresponding increase in selling, general and administrative expenses. The Company charges off uncollectible receivables against the allowance when all attempts to collect the receivable have failed. The Company's history of write-offs has not been significant. Recoveries are recognized when received as a reduction to the allowance for credit losses by decreasing bad debt expense. The following

(In Thousands, Except Per Share Amounts)

table provides a reconciliation of the changes in the allowance for estimated accounts receivable credit losses for the years ended December 31, 2022, 2021 and 2020:

	Year Ended December 31,		
	2022	2021	2020
Beginning balance - January 1	$ 1,096	$ 1,096	$ 1,124
Adoption of ASU 2016-13	—	—	(28)
Provision for expected credit losses	190	65	—
Recovery	(1,056)	(65)	—
Ending balance - December 31	$ 230	$ 1,096	$ 1,096

Inventories—Inventories are stated at the lower of cost or net realizable value based on the first-in, first-out cost method (FIFO) and consist of raw materials, work in process and finished goods. The Company's industry is characterized by rapid product development and frequent new product introductions. Uncertain timing of regulatory approvals, variability in product launch strategies and variation in product use all impact inventory reserves for excess, obsolete and expired products. An increase to inventory reserves results in a corresponding increase in cost of revenue. Inventories are written off against the reserve when they are physically disposed.

Property and Equipment—Property and equipment is stated at cost less accumulated depreciation. Depreciation is determined using the straight-line method over the estimated useful life. The estimated useful life of leasehold improvements is the shorter of the estimated life or the lease term. The estimated useful lives of buildings is 15 to 20 years, while furniture, fixtures, computers and office equipment are depreciated from three to seven years. The Company's radiofrequency and cryothermic generators are generally placed with customers that use the Company's disposable products. The estimated useful lives of generators are based on anticipated usage by customers and may change in future periods with changes in usage or introduction of new technology. Depreciation related to generators is recorded in cost of revenue over three years. Maintenance and repair costs are expensed as incurred. The Company assesses the useful lives of property and equipment at least annually and retires assets no longer in use.

Intangible Assets—Intangible assets with determinable useful lives are amortized on a straight-line basis over the estimated fifteen year period benefited. The Company reviews intangible assets at least annually for impairment using its best estimates based on reasonable and supportable assumptions and projections.

Goodwill—Goodwill represents the excess of purchase price over the fair value of the net assets acquired in business combinations. The Company's goodwill is accounted for in a single reporting unit representing the Company as a whole. The Company performs impairment testing annually on October 1 or more often if impairment indicators are present.

Long-lived Assets—The Company reviews property and equipment and intangible assets, excluding goodwill, for impairment whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. When such an event occurs, management determines whether there has been impairment by comparing the anticipated undiscounted future net cash flows to the related asset's carrying value.

Leases—The Company leases office, manufacturing and warehouse facilities and computer equipment under leases that qualify as either financing or operating leases, as determined at the inception of the lease arrangement. Lease assets represent the right to use an underlying asset for the lease term, and lease liabilities represent the obligation to make payments under the lease. Lease assets and liabilities are measured and recorded at the commencement date based on the present value of payments over the lease term.

Lease assets and liabilities include lease incentives and options to extend or terminate when it is reasonably certain the Company will exercise that option. The Company uses the implicit rate when readily determinable; however, as most leases do not provide an implicit rate, the Company generally uses its incremental borrowing rate. The Company also applies the short-term lease recognition exemption, recognizing lease payments in profit or loss, for lease terms of 12 months or less at commencement and with no option to extend the lease whose exercise is reasonably certain. The Company accounts for the lease and non-lease components as a single lease component. Additionally, the portfolio approach is applied for operating leases based on the terms of the underlying leases.

(In Thousands, Except Per Share Amounts)

Operating leases are included in operating lease right-of-use (ROU) assets and operating lease liabilities, while finance leases are included in property and equipment and finance lease liabilities. The short-term portions of both lease liabilities are included in other current liabilities and current maturities of debt and leases. Operating lease expense is recognized on a straight-line basis over the lease term. See Note 9 for further discussion.

Other Noncurrent Liabilities—This balance consists of contractual obligations, including asset retirement obligations.

Other Income (Expense)—Other income (expense) consists primarily of foreign currency transaction gains and losses generated by settlements of intercompany balances denominated in Euros and customer invoices transacted in British Pounds and Australian Dollars.

Income Taxes—Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred income tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred income tax assets and liabilities from a change in tax rates is recognized in the period that includes the enactment date.

The Company's estimate of the valuation allowance for deferred income tax assets requires significant estimates and judgments about future operating results. Deferred income tax assets are reduced by valuation allowances if, based on the consideration of all available evidence, it is more-likely-than-not that a deferred income tax asset will not be realized. Significant weight is given to evidence that can be objectively verified. The Company evaluates deferred income tax assets on an annual basis to determine if valuation allowances are required by considering all available evidence. Deferred income tax assets are realized by having sufficient future taxable income to allow the related tax benefits to reduce taxes otherwise payable. The sources of taxable income that may be available to realize the benefit of deferred income tax assets are future taxable income, future reversals of existing taxable temporary differences, taxable income in prior carryforward years and tax planning strategies that are both prudent and feasible. In evaluating the need for a valuation allowance, the existence of cumulative losses in recent years is significant objectively-verifiable negative evidence that must be overcome by objectively-verifiable positive evidence to avoid the need for a valuation allowance. The Company's valuation allowance offsets substantially all net deferred income tax assets as it is more-likely-than-not that the benefit of the deferred income tax assets will not be recognized in future periods. The Company has not reclassified income tax effects of the Tax Cuts and Jobs Act within accumulated other comprehensive (loss) income to retained earnings due to its full valuation allowance.

Earnings Per Share—Basic earnings per share is computed by dividing net (loss) income available to common stockholders by the weighted average number of shares of common stock outstanding during the period. Diluted earnings per share reflects net income available to common stockholders divided by the weighted average number of common shares outstanding during the period and any dilutive common share equivalents, including shares issuable upon the vesting of restricted stock awards and restricted stock units, exercise of stock options as well as shares issuable under the Company's employee stock purchase plan (ESPP).

	Year Ended December 31,		
	2022	2021	2020
Net (loss) income available to common stockholders	$ (46,466)	$ 50,199	$ (48,155)
Basic weighted average common shares outstanding	45,740	45,066	42,125
Effect of dilutive securities	—	973	—
Diluted weighted average common shares outstanding	45,740	46,039	42,125
Basic net (loss) income per common share	$ (1.02)	$ 1.11	$ (1.14)
Diluted net (loss) income per common share	$ (1.02)	$ 1.09	$ (1.14)

For the years ended December 31, 2022 and 2020, the number of shares calculated for basic net loss per share is also used for the diluted net loss per share calculation, and net loss per share excludes the effect of 1,292 and 2,301 shares

because the effect would be anti-dilutive. The computation of diluted earnings per share in the year ended December 31, 2021 excludes 404 shares because the effect would be anti-dilutive.

Research and Development Costs—Research and development costs include compensation and other internal and external costs associated with the development and research of new and existing products or concepts, preclinical studies, clinical trials and related regulatory activities, as well as amortization of technology assets. Research and development costs are expensed as incurred. Clinical trial costs and other development costs incurred by third parties are expensed as contracted work is performed.

Advertising Costs—The Company expenses advertising costs as incurred. Advertising expense was $1,233, $907 and $655 during the years ended December 31, 2022, 2021 and 2020.

Share-Based Compensation—The Company recognizes share-based compensation expense for all share-based payment awards, including stock options, restricted stock awards, restricted stock units, performance share awards (PSAs) and stock purchases related to an employee stock purchase plan, based on estimated fair values. The value of the portion of an award that is ultimately expected to vest is recognized as expense over the service period. The Company estimates forfeitures at the time of grant and revises them, as necessary, in subsequent periods as actual forfeitures differ from those estimates.

The Company estimates the fair value of time-based options on the date of grant using the Black-Scholes option-pricing model (Black-Scholes model). The Company's determination of the fair value is affected by the Company's stock price as well as several subjective assumptions, such as the Company's expected stock price volatility over the term of the awards and actual and projected employee stock option exercise behaviors. The Company estimates the fair value of restricted stock awards and restricted stock units based upon the grant date closing market price of the Company's common stock.

The Company estimates the fair value of PSAs with a performance condition based on the closing stock price on the date of grant assuming the performance target will be achieved and may adjust expense over the performance period based on changes to estimates of performance target achievement. If such targets are not met or service is not rendered for the requisite service period, no compensation cost is recognized, and any recognized compensation cost in prior periods will be reversed. For PSAs with a market condition, a Monte Carlo simulation is performed to estimate the fair value on the date of grant, and compensation cost is recognized over the requisite service period as the employee renders service, even if the market condition is not satisfied. The Company's determination of the fair value is affected by the Company and market index stock performance, as defined by the award agreement, at the beginning of the service period and grant date; the expected volatility of the Company and market index stock performance over the performance period and the correlation coefficient of the daily returns for the Company and market index over the performance period.

The Company also has an employee stock purchase plan (ESPP) which is available to all eligible employees as defined by the plan document. Under the ESPP, shares of the Company's common stock may be purchased at a discount. The Company estimates the number of shares to be purchased under the ESPP at the beginning of each purchase period based upon the fair value of the stock at the beginning of the purchase period using the Black-Scholes model and records estimated compensation expense during the purchase period. Expense is adjusted at the time of stock purchase.

Use of Estimates—The preparation of the financial statements in conformity with accounting principles generally accepted in the United States of America (GAAP) requires estimates and assumptions that affect the reported amounts of assets and liabilities, including intangible assets, contingent assets and liabilities and the reported amounts of revenue and expense during the reporting period. Estimates are based on historical experience, where applicable, and other assumptions believed to be reasonable by management. Actual results could differ from those estimates.

Segments—The Company evaluates reporting segments in accordance with FASB ASC 280, "Segment Reporting". The Company develops, manufactures and sells devices designed primarily for the surgical ablation of cardiac tissue, systems designed for the exclusion of the left atrial appendage and devices designed to block pain by temporarily ablating peripheral nerves. These devices are developed and marketed to a broad base of medical centers globally. Management considers all such sales to be part of a single operating segment. The chief operating decision maker for the Company is the Chief Executive Officer. The Chief Executive Officer reviews financial information presented on a consolidated basis, accompanied only by information about revenue by product type and geographic area, for purposes of allocating resources and evaluating financial performance. Accordingly, the Company has determined that it has a single operating segment.

The Company's long-lived assets are located in the United States, except for $1,616 as of December 31, 2022 and $1,399 as of December 31, 2021 located primarily in Europe.

Fair Value Disclosures—The Company classifies cash investments in U.S. government and agency obligations, accounts receivable, other current assets, and accounts payable as Level 1. The carrying amounts of these assets and liabilities approximate their fair value due to their relatively short-term nature. Cash equivalents and investments in corporate bonds, repurchase agreements, commercial paper and asset-backed securities are classified as Level 2 within the fair value hierarchy. The fair value of fixed term debt is estimated by calculating the net present value of future debt payments at current market interest rates and is classified as Level 2. The book value of the Company's fixed term debt approximates its fair value because the interest rate varies with market rates. Significant unobservable inputs with respect to the fair value measurements of the Level 3 contingent consideration liabilities are developed using Company data. See Note 2 – Fair Value for further information on fair value measurements.

Recent Accounting Pronouncements—The Company has considered all recent accounting pronouncements and has concluded that there are no recent accounting pronouncements which are expected to have a material effect on the Company's financial statements. The Company continues to monitor and evaluate recently issued accounting guidance upon issuance for any potential impact.

2. FAIR VALUE

FASB ASC 820, "Fair Value Measurements and Disclosures", defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The fair value hierarchy is based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value:

- Level 1—Quoted prices in active markets for identical assets or liabilities that the Company has the ability to access at the measurement date. An active market for the asset or liability is a market in which transactions for the asset or liability occur with sufficient frequency and volume to provide pricing information on an ongoing basis. The valuation under this approach does not entail a significant degree of judgment.
- Level 2—Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities. The valuation technique for the Company's Level 2 assets is based on quoted market prices for similar assets from observable pricing sources at the reporting date.
- Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. Unobservable inputs shall be used to measure fair value to the extent that observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date.

ATRICURE, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In Thousands, Except Per Share Amounts)

The following table represents the Company's fair value hierarchy for its financial assets and liabilities measured at fair value on a recurring basis as of December 31, 2022:

	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Other Unobservable Inputs (Level 3)	Total
Assets:				
Money market funds	$ —	$ 54,414	$ —	$ 54,414
Commercial paper	—	11,935	—	11,935
Government and agency obligations	32,637	—	—	32,637
Corporate bonds	—	67,598	—	67,598
Asset-backed securities	—	2,353	—	2,353
Total assets	$ 32,637	$ 136,300	$ —	$ 168,937

There were no changes in the levels or methodology of measurement of financial assets and liabilities during the years ended December 31, 2022 and 2021.

The following table represents the Company's fair value hierarchy for its financial assets and liabilities measured at fair value on a recurring basis as of December 31, 2021:

	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Other Unobservable Inputs (Level 3)	Total
Assets:				
Money market funds	$ —	$ 38,360	$ —	$ 38,360
Commercial paper	—	22,978	—	22,978
Government and agency obligations	32,690	—	—	32,690
Corporate bonds	—	95,845	—	95,845
Asset-backed securities	—	28,261	—	28,261
Total assets	$ 32,690	$ 185,444	$ —	$ 218,134

Contingent Consideration. The Company's contingent consideration arrangements arising from the SentreHEART acquisition obligate the Company to pay certain defined amounts to former shareholders of SentreHEART if specified milestones are met related to the aMAZE IDE clinical trial, including PMA approval and reimbursement for the therapy involving SentreHEART's devices. The achievement periods for the PMA approval and reimbursement milestones expire on December 31, 2023 and December 31, 2026, respectively. The contingent consideration liabilities are measured by applying the probability weighted scenario method using unobservable inputs, thus representing a Level 3 measurement within the fair value hierarchy. During 2021, the Company was informed that data from the aMAZE clinical trial did not achieve statistical superiority, and the Company assessed the projected probability of payment to be remote. The Company recorded a credit to operating expenses of $184,800 reflecting the change in fair value of the contingent consideration. The Company has assessed the projected probability of payment during the contractual achievement periods to be remote, resulting in no fair value as of December 31, 2022 and 2021.

(In Thousands, Except Per Share Amounts)

The following table represents the Company's Level 3 fair value measurements using significant other unobservable inputs for acquisition-related contingent consideration for each of the years ended December 31:

	2022	2021	2020
Beginning Balance – January 1	$ —	$ 184,800	$ 185,157
Amounts acquired	—	—	—
Changes in fair value of contingent consideration	—	(184,800)	(357)
Ending Balance – December 31	$ —	$ —	$ 184,800

3. INVESTMENTS

Investments as of December 31, 2022 consisted of the following:

	Cost Basis	Unrealized Losses	Fair Value
Corporate bonds	$ 69,832	$ (2,234)	$ 67,598
Government and agency obligations	33,971	(1,334)	32,637
Commercial paper	11,935	—	11,935
Asset-backed securities	2,483	(130)	2,353
Total	$ 118,221	$ (3,698)	$ 114,523

Investments as of December 31, 2021 consisted of the following:

	Cost Basis	Unrealized Losses	Fair Value
Corporate bonds	$ 96,408	$ (563)	$ 95,845
Government and agency obligations	32,953	(263)	32,690
Commercial paper	22,978	—	22,978
Asset-backed securities	28,322	(61)	28,261
Total	$ 180,661	$ (887)	$ 179,774

The gross realized gains or losses from sales of available-for-sale investments were not material in the years ended December 31, 2022, 2021 and 2020.

The cost and fair value of investments in debt securities, by contractual maturity, as of December 31, 2022 were as follows:

	Available-for-sale	
	Amortized Cost	Fair Value
Due in 1 year or less	$ 63,596	$ 62,840
Due after 1 year through 5 years	52,142	49,330
Due after 5 years through 10 years	—	—
Instruments not due at a single maturity date	2,483	2,353
Total	$ 118,221	$ 114,523

Instruments not due at a single maturity date consist of asset-backed securities. Actual maturities may differ from the contractual maturities due to call or prepayment rights.

ATRICURE, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
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4. INTANGIBLE ASSETS AND GOODWILL

The following table provides a summary of the Company's intangible assets at December 31:

	2022		2021	
	Cost	Accumulated Amortization	Cost	Accumulated Amortization
Technology	$ 46,470	$ 7,131	$ 55,712	$ 12,720

During 2021, the Company recorded an impairment charge of $82,300 to reduce the carrying value of the aMAZE IPR&D asset to $0 as of December 31, 2022 as a result of data from the aMAZE clinical trial not achieving statistical superiority. This impairment charge was reflected as a component of operating expenses. The $9,242 reduction in technology cost and accumulated amortization during 2022 is a result of a write-off fully-amortized asset no longer in use.

Amortization expense of intangible assets was $3,653, $2,907 and $1,682 for the years ended December 31, 2022, 2021 and 2020.

Future amortization expense is projected as follows:

2023	$ 2,953
2024	2,953
2025	2,953
2026	2,953
2027	2,953
2028 and thereafter	24,574
Total	$ 39,339

The following table provides a summary of the Company's goodwill, which is not amortized, but rather tested annually for impairment:

Net carrying amount as of December 31, 2020	$ 234,781
Additions	—
Net carrying amount as of December 31, 2021	234,781
Additions	—
Net carrying amount as of December 31, 2022	$ 234,781

5. INVENTORIES

Inventories consisted of the following at December 31:

	2022	2021
Raw materials	$ 19,880	$ 12,653
Work in process	2,959	2,064
Finished goods	23,092	24,247
Inventories	$ 45,931	$ 38,964

ATRICURE, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In Thousands, Except Per Share Amounts)

6. PROPERTY AND EQUIPMENT

Property and equipment consisted of the following at December 31:

	2022	2021
Buildings and improvements	$ 28,947	$ 22,977
Generators	21,354	20,175
Machinery and office equipment	20,184	14,758
Computer equipment and software	10,251	7,762
Construction in progress	3,909	5,999
Land	1,006	1,006
Total	85,651	72,677
Less accumulated depreciation	(46,818)	(41,268)
Property and equipment, net	$ 38,833	$ 31,409

Property and equipment depreciation expense was $8,057, $7,534 and $7,866 for the years ended December 31, 2022, 2021 and 2020. As of December 31, 2022 and 2021, the net carrying value of generators and other capital equipment was $4,447 and $3,637.

7. ACCRUED LIABILITIES

Accrued liabilities consisted of the following at December 31:

	2022	2021
Accrued compensation and employee-related expenses	$ 26,924	$ 30,990
Other accrued liabilities	3,301	2,686
Sales returns and allowances	2,797	2,416
Total	$ 33,022	$ 36,092

8. INDEBTEDNESS

Credit Facility. The Company has a Loan and Security Agreement, as amended and modified effective February 8, 2021 and as further amended November 1, 2021 (Loan Agreement) with Silicon Valley Bank (SVB). The Loan Agreement includes a $60,000 term loan, with an option to make available an additional $30,000 in term loan borrowings, and a $30,000 revolving line of credit. The Loan Agreement has a five year term, expiring November 2026.

Principal payments under the Loan Agreement are to be made ratably commencing 24 months after inception through the loan's maturity date. At the option of the Company, the commencement of term loan principal payments may be extended an additional twelve months. The term loan accrues interest at the Prime Rate plus 1.25% and is subject to an additional 3.00% fee on the term loan principal amount at maturity. The Company is accruing the 3.00% fee over the term of the Loan Agreement, with $420 included in the outstanding loan balance as of December 31, 2022. Additionally, the unamortized financing costs related to the term loan of $253 are netted against the outstanding loan balance in the Consolidated Balance Sheets and are amortized ratably over the term of the Loan Agreement.

The revolving line of credit is subject to an annual facility fee of 0.20% of the revolving line of credit, and any borrowings thereunder bear interest at the Prime Rate. Borrowing availability under the revolving credit facility is based on the lesser of $30,000 or a borrowing base calculation as defined by the Loan Agreement. As of December 31, 2022, the Company had no borrowings under the revolving credit facility and had borrowing availability of approximately $28,750. Financing costs related to the revolving line of credit are included in other assets in the Consolidated Balance Sheets and amortized ratably over the twelve-month period of the annual fee.

(In Thousands, Except Per Share Amounts)

The Loan Agreement also provides for certain prepayment and early termination fees, as well as establishes a minimum liquidity covenant and dividend restrictions, along with other customary terms and conditions. Specified assets have been pledged as collateral.

Future maturities of long-term debt, excluding the term loan final fee, are projected as follows:

2023	$ 3,333
2024	20,000
2025	20,000
2026	16,667
Total long-term debt, of which $3,333 is current and $56,667 is noncurrent	$ 60,000

9. LEASES

The Company has operating and finance leases for offices, manufacturing and warehouse facilities and computer equipment. The Company's leases have remaining lease terms of one to eight years. Options to renew or extend leases beyond their initial term have been excluded from measurement of the ROU assets and lease liabilities for the majority of leases as exercise is not reasonably certain.

The weighted average remaining lease term and the discount rate for the reporting periods are as follows:

	As of December 31, 2022	As of December 31, 2021	As of December 31, 2020
Operating Leases			
Weighted average remaining lease term (years)	4.4	3.6	3.2
Weighted average discount rate	4.60 %	4.69 %	5.68 %
Finance Leases			
Weighted average remaining lease term (years)	7.6	8.6	9.7
Weighted average discount rate	6.92 %	6.91 %	6.91 %

A letter of credit for $1,250 was issued to the lessor of the Company's corporate headquarters building in October 2015, and is renewed annually and remains outstanding as of December 31, 2022.

The components of lease expense are as follows:

	Year Ended December 31, 2022	Year Ended December 31, 2021	Year Ended December 31, 2020
Operating lease cost	$ 1,133	$ 1,052	$ 1,237
Finance lease cost:			
Amortization of right-of-use assets	1,016	1,019	1,050
Interest on lease liabilities	735	792	844
Total finance lease cost	$ 1,751	$ 1,811	$ 1,894

Short term lease expense was not significant for the twelve months ended December 31, 2022, 2021 and 2020.

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(In Thousands, Except Per Share Amounts)

Supplemental cash flow information related to leases was as follows:

	Year Ended December 31, 2022	Year Ended December 31, 2021	Year Ended December 31, 2020
Cash paid for amounts included in the measurement of lease liabilities:			
Operating cash flows for operating leases	$ 845	$ 998	$ 1,236
Operating cash flows for finance leases	735	620	844
Financing cash flows for finance leases	899	792	664
Right-of-use assets obtained in exchange for lease obligations:			
Operating Leases	—	3,752	1,421
Finance Leases	62	—	22
Early termination of operating lease	—	—	2,743

Supplemental balance sheet information related to leases was as follows:

	As of December 31, 2022	As of December 31, 2021
Operating Leases		
Operating lease right-of-use assets	$ 3,787	$ 4,761
Other current liabilities and current maturities of debt and leases	1,147	861
Operating lease liabilities	3,095	4,068
Total operating lease liabilities	$ 4,242	$ 4,929
Finance Leases		
Property and equipment, at cost	$ 14,645	$ 14,607
Accumulated depreciation	(7,109)	(6,116)
Property and equipment, net	$ 7,536	$ 8,491
Other current liabilities and current maturities of debt and leases	$ 992	$ 895
Finance lease liabilities	9,147	10,082
Total finance lease liabilities	$ 10,139	$ 10,977

Maturities of lease liabilities as of December 31, 2022 were as follows:

	Operating Leases	Finance Leases
2023	$ 1,160	$ 1,665
2024	1,164	1,689
2025	920	1,638
2026	592	1,671
2027	609	1,703
2028 and thereafter	259	4,824
Total payments	$ 4,704	$ 13,190
Less imputed interest	(462)	(3,051)
Total lease liabilities	$ 4,242	$ 10,139

10. COMMITMENTS AND CONTINGENCIES

License Agreements. The Company has a license agreement that requires payments of 5% of specified product sales. The agreement terminates the later of 2023 or expiration of the underlying patents or patent applications, which is expected to occur after 2023. Parties to the license agreement have the right at any time to terminate the agreement immediately for cause. Royalty expense was $3,264, $3,124 and $2,596 for the years ended December 31, 2022, 2021 and 2020.

Purchase Agreements. The Company enters into standard purchase agreements with suppliers in the ordinary course of business, generally with terms that allow cancellation.

Legal. The Company may, from time to time, become a party to legal proceedings. Such matters are subject to many uncertainties and to outcomes of which the financial impacts are not predictable with assurance and that may not be known for extended periods of time. A liability is established once management determines a loss is probable and an amount can be reasonably estimated.

The Company received a Civil Investigative Demand (CID) from the U.S. Department of Justice (USDOJ) in December 2017 stating that it is investigating the Company to determine whether the Company has violated the False Claims Act, relating to the promotion of certain medical devices related to the treatment of atrial fibrillation for off-label use and submitted or caused to be submitted false claims to certain federal and state health care programs for medically unnecessary healthcare services related to the treatment of atrial fibrillation. The CID covers the period from January 2010 to December 2017 and required the production of documents and answers to written interrogatories. The Company had no knowledge of the investigation prior to receipt of the CID. The Company maintains rigorous policies and procedures to promote compliance with the False Claims Act and other applicable regulatory requirements. The Company provided the USDOJ with documents and answers to the written interrogatories. In March 2021, USDOJ informed the Company that its investigation was based on a lawsuit brought on behalf of the United States and various state and local governments under the *qui tam* provisions of federal and certain state and local False Claims Acts. Although the USDOJ and all of the state and local governments declined to intervene, the relator continues to pursue the case. During the third quarter of 2022, the relator filed a Fourth Amended Complaint, which dropped allegations of off-label promotion and now alleges that the Company paid illegal kickbacks to healthcare providers in exchange for using or referring the Company's products, in violation of the federal Anti-Kickback Statute and various comparable state and local laws. While the Company is contesting the case, it is not possible to predict when this matter may be resolved or what impact, if any, the outcome of this matter might have on our consolidated financial position, results of operations or cash flows.

On August 23, 2022, the Cleveland Clinic Foundation ("Clinic") and IDx Medical, Ltd. ("IDX") filed a Demand for Arbitration against the Company with the American Arbitration Association ("AAA"), alleging that the Company breached certain provisions of the License Agreement dated December 9, 2003 among the Company, Clinic and IDX ("License Agreement"). Clinic and IDX allege the Company did not include the revenues from sales of certain products in its calculation of royalty payments due under the License Agreement. Clinic and IDX also allege that the Company did not provide related notices required under the License Agreement. The Demand for Arbitration requests a declaration that the termination of the License Agreement shall not occur until the expiration of certain patents and that the Company violated the License Agreement's non-competition provisions. Clinic and IDX claim they are entitled to no less than $6 million plus interest and costs, fees and expenses associated with their claims and future royalties.

The Company denies the allegations of Clinic and IDX. The Company filed its Answering Statement and Counterclaims to the allegations in September 2022, denying each claim and counterclaiming for breach of contract, correction of inventorship, declaratory judgment, patent prosecution and legal fees. This arbitration has been scheduled for May 2023. While the Company is contesting the case, it is not possible to predict when this matter may be resolved or what impact, if any, the outcome of this matter might have on our consolidated financial position, results of operations, or cash flows.

11. REVENUE

The Company develops, manufactures and sells devices designed primarily for surgical ablation of cardiac tissue, exclusion of the left atrial appendage, and blocking pain by temporarily ablating peripheral nerves. These devices are marketed to a broad base of medical centers globally.

In 2022, the Company changed the presentation of its disaggregated revenue within the notes to the Consolidated Financial Statements to align with current product line offerings. Specifically, pain management revenue, representing

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sales of the cryoSPHERE® product, was historically presented within open ablation revenue and is now a separately stated revenue product type. Valve revenue, historically presented as a separate product type revenue, is now included in open ablation revenue. Revenue amounts for comparative prior fiscal periods have been reclassified to conform to the current period presentation.

United States revenue by product type is as follows:

	2022	2021	2020
Open ablation	$ 86,119	$ 72,396	$ 65,301
Minimally invasive ablation	38,553	39,380	25,647
Pain management	39,974	22,787	11,315
Total ablation	$ 164,646	$ 134,563	$ 102,263
Appendage management	112,555	94,568	66,981
Total United States	$ 277,201	$ 229,131	$ 169,244

International revenue by product type is as follows:

	2022	2021	2020
Open ablation	$ 26,809	$ 23,194	$ 18,760
Minimally invasive ablation	5,986	6,409	6,171
Pain management	558	61	3
Total ablation	$ 33,353	$ 29,664	$ 24,934
Appendage management	19,825	15,534	12,353
Total International	$ 53,178	$ 45,198	$ 37,287

Revenue attributed to customer geographic locations is as follows:

	2022	2021	2020
United States	$ 277,201	$ 229,131	$ 169,244
Europe	30,428	27,931	23,217
Asia	20,734	16,077	13,118
Other International	2,016	1,190	952
Total International	53,178	45,198	37,287
Total Revenue	$ 330,379	$ 274,329	$ 206,531

12. INCOME TAXES

The Company files federal, state and foreign income tax returns in jurisdictions with varying statutes of limitations. The Company uses the asset and liability method in accordance with FASB ASC 740, “Income Taxes”, under which deferred income taxes are provided for the temporary differences between the financial reporting basis and the tax basis of the Company’s assets and liabilities. Deferred taxes are measured using provisions of currently enacted tax laws. A valuation allowance against deferred tax assets is recorded when it is more likely than not that such assets will not be fully realized. The Company's valuation allowance offsets substantially all its net deferred tax assets as it is more likely than not that the benefit of the deferred tax assets will not be recognized in future periods.

ATRICURE, INC. AND SUBSIDIARIES
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The Company's provision for income taxes for each of the years ended December 31 is as follows:

	2022	2021	2020
Current tax expense			
Federal	$ —	$ —	$ (26)
State	142	42	78
Foreign	118	125	74
Total current tax expense	260	167	126
Deferred tax expense			
Federal	$ (8,351)	$ (30,925)	$ (10,304)
State	(459)	(4,803)	(1,686)
Foreign	(1,636)	(826)	(3,071)
Change in valuation allowance	10,454	36,575	15,049
Total deferred tax expense	8	21	(12)
Total tax expense	$ 268	$ 188	$ 114

The detail of deferred tax assets and liabilities at December 31 is as follows:

	2022	2021
Deferred tax assets:		
Net operating loss carryforwards	$ 138,263	$ 137,920
Research and development credit carryforwards	13,205	11,269
Research and experimental expenditures	10,104	—
Equity compensation	8,287	7,974
Finance and operating lease liabilities	3,395	3,700
Deferred interest	2,411	2,469
Inventories	1,896	2,434
Accruals and reserves	1,332	1,755
Other	506	587
Total deferred tax assets	179,399	168,108
Deferred tax liabilities:		
Intangible assets	(9,278)	(9,993)
Right-of-use assets	(2,626)	(3,037)
Property and equipment	(2,568)	(1,264)
Total deferred tax liabilities	(14,472)	(14,294)
Valuation allowance	(164,918)	(153,798)
Net deferred tax assets	$ 9	$ 16

Provisions enacted in the Tax Cut and Jobs Act of 2017 related to the capitalization of research and experimental expenditures for tax purposes became effective on January 1, 2022. These provisions require us to capitalize and amortize research and experimental expenditures for tax purposes over five or fifteen years, depending on where research is conducted. The Company has federal net operating loss carryforwards of $331,169 which expire between 2023 and 2037 and $175,758 which have no expiration. The Company has state and local net operating loss carryforwards of $322,819 which expire between 2023 to 2042. A portion of the Company's federal and state net operating loss carryforwards are subject to certain limitations under Internal Revenue Code Sections 382 and 383. The Company has federal research and development credit carryforwards of $13,205 which expire between 2023 and 2042. Additionally, the Company has foreign net operating loss carryforwards of approximately $60,381 which have no expiration.

(In Thousands, Except Per Share Amounts)

The Company's 2022, 2021 and 2020 effective income tax rates differ from the federal statutory rate as follows:

	2022		2021		2020	
Federal tax at statutory rate	21.0 %	$ (9,701)	21.0 %	$ 10,580	21.0 %	$ (10,088)
Permanent differences	(1.9)	876	(80.3)	(40,439)	(2.5)	1,214
Valuation allowance	(22.6)	10,454	72.6	36,575	(31.3)	15,048
State income taxes	0.7	(317)	(9.4)	(4,760)	3.3	(1,607)
Federal R&D credit	4.2	(1,936)	(3.7)	(1,878)	2.0	(985)
Foreign income taxes	(0.5)	215	0.7	344	4.5	(2,140)
Federal deferred adjustments	(1.5)	677	(0.5)	(234)	2.8	(1,328)
Effective tax rate	(0.6)%	$ 268	0.4 %	$ 188	(0.2)%	$ 114

The Company's pre-tax book (loss) income for domestic and international operations was $(38,008) and $(8,190) for 2022, $55,666 and $(5,279) for 2021 and $(43,218) and $(4,823) for 2020.

The Company had undistributed earnings of foreign subsidiaries of approximately $379 at December 31, 2022. The Company does not consider these earnings as permanently reinvested and has determined that no current and deferred taxes are required on such amounts.

Federal, state and local tax returns of the Company are routinely subject to examination by various taxing authorities. Federal income tax returns for periods beginning in 2019 are open for examination. Generally, state and foreign income tax returns for periods beginning in 2018 are open for examination. However, taxing authorities have the ability to audit net operating loss and tax credit carryforwards from years prior to these periods. The Company has not recognized certain tax benefits because of the uncertainty of realizing the entire value of the tax position taken on income tax returns upon review by the taxing authorities.

A reconciliation of the change in federal and state unrecognized tax benefits for 2022, 2021 and 2020 is presented below:

	2022	2021	2020
Balance at the beginning of the year	$ 1,798	$ 1,798	$ 1,777
Increases (decreases) for prior year tax positions	(36)	—	21
Increases (decreases) for current year tax positions	—	—	—
Increases (decreases) related to settlements	—	—	—
Decreases related to statute lapse	—	—	—
Balance at the end of the year	$ 1,762	$ 1,798	$ 1,798

The balance of unrecognized tax benefits at December 31, 2022, 2021 and 2020 includes $1,762, $1,798 and 1,798 of tax benefits that, if recognized, would result in adjustments to other tax accounts, primarily deferred taxes and valuation allowance. The Company does not expect that its unrecognized tax benefits for research credits will significantly change within twelve months of December 31, 2022.

13. CONCENTRATIONS

During 2022, 2021 and 2020, approximately 9.7%, 10.5% and 10.8% of the Company's total net revenue was derived from its top ten customers. During 2022, 2021 and 2020 no individual customer accounted for more than 10% of the Company's revenue.

As of December 31, 2022 and 2021, 11.7% and 16.0% of the Company's total accounts receivable balance was derived from its top ten customers. No individual customer accounted for more than 10% of the Company's accounts receivable as of December 31, 2022 and 2021.

The Company maintains cash and cash equivalents balances at financial institutions which at times exceed FDIC limits. As of December 31, 2022, $57,849 of the cash and cash equivalents balance was in excess of the FDIC limits.

14. EMPLOYEE BENEFIT PLANS

The Company sponsors the AtriCure, Inc. 401(k) Plan (401(k) Plan), a defined contribution plan covering substantially all U.S. employees of the Company. Eligible employees may contribute pre-tax annual compensation up to specified maximums under the Internal Revenue Code. During the year ended December 31, 2022, the Company made matching contributions of 50% on the first 8% of employee contributions to the 401(k) Plan. During the year ended December 31, 2021 and 2020, the Company made matching contributions of 50% on the first 6% of employee contributions to the 401(k) Plan. The Company's matching contributions in 2022, 2021 and 2020 were $4,447, $2,651 and $2,237. Additional amounts may be contributed to the 401(k) Plan at the discretion of the Company's Board of Directors, however, no such discretionary contributions were made in 2022, 2021 or 2020. The Company also provides retirement benefits for employees of its foreign subsidiaries. Total contributions to foreign retirement plans were $446, $349 and $244 in 2022, 2021 and 2020.

15. EQUITY COMPENSATION PLANS

The Company has two share-based incentive plans: the 2014 Stock Incentive Plan (2014 Plan) and the 2018 Employee Stock Purchase Plan (ESPP).

Stock Incentive Plan

Under the 2014 Plan, the Board of Directors may grant restricted stock awards or restricted stock units (collectively RSAs), nonstatutory stock options, performance share awards (PSAs) or stock appreciation rights to Company employees, directors and consultants, and may grant incentive stock options to Company employees. The Compensation Committee of the Board of Directors, as the administrator of the 2014 Plan, has the authority to determine the terms of any awards, including the number of shares subject to each award, the exercisability of the awards and the form of consideration. As of December 31, 2022, 13,999 shares of common stock had been reserved for issuance under the 2014 Plan and 2,183 shares were available for future grants. Stock options, restricted stock awards and restricted stock units granted generally vest at a rate of 33.3% on the first, second and third anniversaries of the grant date. Stock options generally expire ten years from the date of grant.

The award agreements for the PSAs provide that each PSA that vests represents the right to receive one share of the Company's common stock at the end of the performance period. With respect to the PSAs, the number of shares that vest and are issued to the recipient is based upon the Company's performance with respect to specified targets at the end of the three year performance period. PSAs granted in 2020 have performance targets based on the Company's compound annual revenue growth rate (CAGR) over the three year performance period, and payout opportunities range from 0% to 100% of the target amount. PSAs awarded subsequent to 2020 have two weighted performance targets: (i) the Company's CAGR and (ii) relative total shareholder return (TSR). TSR is measured against the Nasdaq Health Care Index constituents and the 20-trading-day average stock price prior to the start and end of the performance period. PSAs granted in 2021 have payout opportunities ranging from 0% to 200% of the target amount, based on equally weighting of the performance targets. Awards granted in 2022 have payout opportunities ranging from 0% to 300% of the target amount and are weighted 60% on the CAGR performance target and 40% on the TSR performance target. These ranges are used to determine the number of shares that will be issuable when the award vests. The performance and market condition payouts will be determined independently and accumulated to determine the total payout for the three year performance period, subject to the maximum payout defined in the PSA agreements. All or a portion of the PSAs may vest following a change of control or a termination of service by reason of death or disability.

ATRICURE, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In Thousands, Except Per Share Amounts)

Activity under the plans during 2022 was as follows:

Time-Based Stock Options	Number of Shares Outstanding	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
Outstanding at January 1, 2022	653	$ 25.53		
Granted	—	—		
Exercised	(159)	11.45		
Forfeited	(13)	55.33		
Outstanding at December 31, 2022	481	$ 29.34	4.2	$ 9,437
Vested and expected to vest	479	$ 29.17	4.2	$ 9,436
Exercisable at December 31, 2022	411	$ 23.46	3.5	$ 9,352

The total intrinsic value of options exercised during the years ended December 31, 2022, 2021 and 2020 was $5,565, $27,318 and $29,594. As a result of the Company's full valuation allowance on its net deferred tax assets, no tax benefit was recognized related to the stock option exercises. The exercise price per share of each option is equal to the fair market value of the underlying share on the date of grant. For 2022, 2021 and 2020, $1,816, $8,175 and $10,835 in cash proceeds from the exercise of stock options were included in the Consolidated Statements of Cash Flows.

Restricted Stock Awards and Performance Share Awards	RSA Shares Outstanding	Weighted Average Grant Date Fair Value	PSA Shares Outstanding	Weighted Average Grant Date Fair Value
Outstanding at January 1, 2022	628	$ 50.96	227	$ 64.27
Awarded	356	63.14	117	91.05
Released	(362)	47.58	(116)	44.21
Forfeited	(24)	57.45	(15)	55.17
Outstanding at December 31, 2022	598	$ 60.00	213	$ 90.70

The total fair value of restricted stock vested during 2022, 2021 and 2020 was $23,242, $40,510 and $34,200. The total fair value of performance share awards vested during 2022, 2021 and 2020 was $5,185, $8,165 and $4,003. The Company issues registered shares of common stock to satisfy stock option exercises and restricted stock and performance award grants.

Employee Stock Purchase Plan

Under the ESPP, shares of the Company's common stock may be purchased at a discount (15%) to the lesser of the closing price of the Company's common stock on the first or last trading day of the offering period. The offering period (currently six months) and the offering price are subject to change. Participants may not purchase a value of more than $25 of the Company's common stock in a calendar year and may not purchase a value of more than 3 shares during an offering period. As of December 31, 2022, there were 184 shares available for future issuance under the ESPP.

(In Thousands, Except Per Share Amounts)

Valuation and Expense Information Under FASB ASC 718

The following table summarizes total share-based compensation expense related to employees, directors and consultants for 2022, 2021 and 2020. The expense was allocated as follows:

	2022	2021	2020
Cost of revenue	$ 1,868	$ 2,243	$ 1,425
Research and development expenses	4,544	4,206	3,530
Selling, general and administrative expenses	22,359	21,629	17,687
Total	$ 28,771	$ 28,078	$ 22,642

The expense by award type was allocated as follows:

	2022	2021	2020
Restricted Stock Awards & Time-Based Stock Options	$ 18,633	$ 18,727	$ 18,612
Performance Share Awards	8,731	8,095	2,921
ESPP	1,407	1,256	1,109
Total	$ 28,771	$ 28,078	$ 22,642

In 2020, the Compensation Committee modified the methodology for measuring performance of the 2018, 2019 and 2020 performance awards. The modification to vesting conditions and performance measures resulted in incremental compensation cost of $994, $2,856 and $569 during 2022, 2021 and 2020.

As of December 31, 2022 there was $23,252 of unrecognized compensation costs related to non-vested stock options and restricted stock arrangements ($1,160 relating to stock options and $22,092 relating to restricted stock). This cost is expected to be recognized over a weighted-average period of 1.4 years for stock options and 1.8 years for restricted stock. As of December 31, 2022 there was $11,648 of unrecognized compensation costs related to non-vested performance share awards, and this cost is expected to be recognized over a weighted-average period of 1.7 years.

In determining compensation expense, the fair value of restricted stock awards, restricted stock units and performance share awards with a performance condition is based on the market value of the Company's stock on the grant date of the awards or subsequent modification (as applicable). The fair value of options is estimated on the grant date using the Black-Scholes model. No options were granted during 2022. Options granted in prior years included the following assumptions:

	2021	2020
Range of risk-free interest rate	0.43-1.22%	0.30 - 1.73%
Range of expected life of stock options (years)	5.3 to 5.7	5.2 to 5.7
Range of expected volatility of stock	40.00 - 43.00%	40.00 - 43.00%
Weighted-average volatility	41.84%	41.54%
Dividend yield	0.00%	0.00%

The Company's estimate of volatility is based solely on the Company's stock price over the expected option life. The risk-free interest rate assumption is based upon the U.S. treasury yield curve at the time of grant for the expected option life. The Company estimates the expected terms of options using historical employee exercise behavior.

ATRICURE, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(In Thousands, Except Per Share Amounts)

The fair value of performance share awards with a market condition is estimated on the grant date using a Monte Carlo simulation and includes the following assumptions:

	2022	2021
Stock price	$39.94 - $69.59	$ 66.31
Expected term (years)	2.6 to 2.8	2.8
Company volatility	43.50 - 46.90%	42.10%
Market index average volatility	90.30 - 92.00%	91.00%
Market index average correlation	33.50 - 35.40%	31.50%
Risk-free interest rate	1.40 - 2.70%	0.20%
Dividend yield	0.00%	0.00%

The expected term is estimated as the remaining performance period at the grant date. Expected volatility is estimated based on the Company and daily trading prices of the market index, adjusted for dividends and stock splits over the remaining performance period. The risk-free interest rate is based upon the US Constant Maturity yield curve at the time of grant for the expected term of the performance share awards.

Based on the assumptions noted above, the weighted average estimated grant date fair value per share of the stock options, restricted stock awards and performance share awards granted for 2022, 2021 and 2020 was as follows:

	2022	2021	2020
Stock options	$ —	$ 27.31	$ 15.25
Restricted stock awards	63.14	67.51	40.77
Performance share awards	91.05	89.36	38.42

16. ACCUMULATED OTHER COMPREHENSIVE (LOSS) INCOME

In addition to net (loss) income, comprehensive (loss) income includes foreign currency translation adjustments and unrealized losses on investments. Accumulated other comprehensive (loss) income consisted of the following, net of tax:

	2022	2021	2020
Total accumulated other comprehensive (loss) income at beginning of period	$ (948)	$ 312	$ (158)
Unrealized (losses) gains on investments			
Balance at beginning of period	$ (887)	$ 54	$ 100
Other comprehensive (loss) income before reclassifications	(2,739)	(941)	(70)
Amounts reclassified from accumulated other comprehensive (loss) income to interest income	(72)	—	24
Balance at end of period	$ (3,698)	$ (887)	$ 54
Foreign currency translation adjustment			
Balance at beginning of period	$ (61)	$ 258	$ (258)
Other comprehensive (loss) income before reclassifications	(774)	(768)	555
Amounts reclassified from accumulated other comprehensive (loss) income to other (expense) income	437	449	(39)
Balance at end of period	$ (398)	$ (61)	$ 258
Total accumulated other comprehensive (loss) income at end of period	$ (4,096)	$ (948)	$ 312

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

The Company's management, with the participation of the President and Chief Executive Officer (the Principal Executive Officer) and Chief Financial Officer (the Principal Accounting and Financial Officer), has evaluated the effectiveness of the Company's disclosure controls and procedures as defined in Rule 13(a) – 15(e) of the Securities Exchange Act of 1934 (Exchange Act), as of the end of the period covered by this report. Based on this evaluation, we concluded that, as of the end of the period covered by this report, our disclosure controls and procedures were effective in providing reasonable assurance that information required to be disclosed by us in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's forms and rules, and the material information relating to the Company is accumulated and communicated to management, including the President and Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosures.

Control systems, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that control objectives are met. Because of inherent limitations in all control systems, no evaluation of controls can provide assurance that all control issues and instances of fraud, if any, within a company will be detected. Additionally, controls can be circumvented by individuals, by collusion of two or more people or by management override. Over time, controls can become inadequate because of changes in conditions or the degree of compliance may deteriorate. Further, the design of any system of controls is based in part upon assumptions about the likelihood of future events. There can be no assurance that any design will succeed in achieving its stated goals under all future conditions. Because of the inherent limitations in any cost-effective control system, misstatements due to errors or fraud may occur and not be detected.

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. There were no changes in our internal control over financial reporting that occurred during the three or twelve months ended December 31, 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Annual Report on Internal Control Over Financial Reporting

The management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting. The 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 accounting principles generally accepted in the United States of America. Internal control over financial reporting includes policies and procedures that: (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with U.S. 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 (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the financial statements. The Company's management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2022. No matter how well designed, because of inherent limitations in all control systems, internal control over financial reporting may not prevent or detect misstatements should they occur. 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 control procedures may deteriorate. In making this assessment, the Company's management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control-Integrated Framework (2013)*. Based on such assessment, management has concluded that the Company's internal control over financial reporting was effective as of December 31, 2022.

Deloitte & Touche LLP, the Company's independent registered public accounting firm, has audited the Consolidated Financial Statements included in this Annual Report on Form 10-K and, as part of its audit, has issued an attestation report on the effectiveness of the Company's internal control over financial reporting.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and the Board of Directors of
AtriCure, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of AtriCure, Inc. and subsidiaries (the "Company") as of December 31, 2022, 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, 2022, 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, 2022, of the Company and our report dated February 22, 2023, 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 Annual 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 22, 2023

ITEM 9B. OTHER INFORMATION

None.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS.

None.

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 2023 Annual Meeting of Stockholders under the heading "Proposal One—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 "Management" 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 Guidelines—Code of Conduct" 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 "Questions and Answers" 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—Report of the Compensation Committee of the Board of Directors" 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 "Compensation Discussion and Analysis—Elements of Executive Compensation" and is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The following table summarizes information about our equity compensation plans as of December 31, 2022.

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (1) (a)	Weighted-average exercise price of outstanding options, warrants and rights (2) (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders (3)	1,291,762	$ 29	2,183,428
Equity compensation plans not approved by security holders	—	—	—
Total	1,291,762	$ 29	2,183,428

(1) Represents outstanding stock options, restricted stock awards and performance shares as of December 31, 2022.

(2) The weighted average exercise price is calculated without taking into account restricted stock that will become issuable, without any cash consideration or other payment, as vesting requirements are achieved.

(3) Amounts include awards under our 2005 Equity Incentive Plan and 2014 Stock Incentive Plan but exclude shares purchased under our 2018 Employee Stock Purchase Plan.

The information required by this item with respect to 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 director independence is contained in the Proxy Statement under the heading “Corporate Governance and Board Matters – Independence of the Board” 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 “Proposal Two-Ratification of Appointment of Independent Registered Public Accounting Firm” and is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(1) The financial statements required by Item 15(a) are filed in Item 8 of this Form 10-K.

(2) The financial statement schedules required by Item 15(a) are filed in Item 8 of this Form 10-K.

(3) The following exhibits are included in this Form 10-K or incorporated by reference in this Form 10-K:

Exhibit No.	Description
3.1	Second Amended and Restated Certificate of Incorporation (incorporated by reference to our Current Report on Form 8-K, filed on May 27, 2016).
3.2	Fourth Amended and Restated Bylaws (incorporated by reference to our Current Report on Form 8-K filed on February 16, 2018).
4.1	Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934 (incorporated by reference to our Annual Report on Form 10-K filed on February 24, 2020).
10.1#	Employment Agreement, dated as of November 1, 2012, between AtriCure, Inc. and Michael H. Carrel (incorporated by reference to our Current Report on Form 8-K, filed on November 1, 2012).
10.2#	2005 Equity Incentive Plan, as amended on September 19, 2007 and on March 6, 2013 (incorporated by reference to our Annual Report on Form 10-K filed on March 8, 2013).
10.3#	AtriCure, Inc. 2018 Employee Stock Purchase Plan (Amended and Restated effective January 1, 2022 (incorporated by reference to our Quarterly Report on Form 10-Q, filed on November 4, 2021).
10.4#	Form of Change in Control Agreement between AtriCure and AtriCure Executive Officers (incorporated by reference to our Annual Report on Form 10-K filed on March 8, 2013).
10.5	Loan and Security Agreement dated as of February 23, 2018 by and among Silicon Valley Bank, AtriCure, Inc., AtriCure, LLC, Endoscopic Technologies, LLC and nContact Surgical, LLC (incorporated by reference to our Current Report on Form 8-K, filed on February 26, 2018).
10.6	Lease Agreement Dated August 20, 2014 between LM-VP AtriCure, LLC, as Landlord, and AtriCure, Inc., as Tenant (incorporated by reference to our Current Report on Form 8-K, filed on August 25, 2014).
10.7#	AtriCure, Inc. 2014 Stock Incentive Plan (Amended and Restated as of May 25, 2022) (incorporated by reference to our Current Report on Form 8-K, filed on May 27, 2022).
10.8#	Form of Restricted Stock Award Agreement under the Amended and Restated AtriCure, Inc. 2014 Stock Incentive Plan (incorporated by reference to our Quarterly Report on Form 10-Q, filed on July 31, 2019).
10.9#	Form of Stock Option Award Agreement under the Amended and Restated AtriCure, Inc. 2014 Stock Incentive Plan (incorporated by reference to our Quarterly Report on Form 10-Q, filed on July 31, 2019).
10.10#	Form of Restricted Share Unit Award Agreement under the Amended and Restated AtriCure, Inc. 2014 Stock Incentive Plan (incorporated by reference to our Quarterly Report on Form 10-Q, filed on July 31, 2019).
10.11	First Loan Modification Agreement dated December 28, 2018 among AtriCure, Inc., Silicon Valley Bank, the lenders named therein, AtriCure, LLC, Endoscopic Technologies, LLC and nContact Surgical, LLC (incorporated by reference to our Current Report on Form 8-K filed on January 3, 2019).
10.12	Second Amendment to Loan and Security Agreement dated August 12, 2019 among AtriCure, Inc., Silicon Valley Bank, and the other parties named therein (incorporated by reference to our Current Report on Form 8-K, filed on August 11, 2019).
10.13	Joinder and Third Amendment to Loan and Security Agreement dated September 27, 2019 (incorporated by reference to our Quarterly Report on Form 10-Q, filed on October 31, 2019).
10.14	Fourth Amendment to Loan and Security Agreement dated April 29, 2020 among AtriCure, Inc., Silicon Valley Bank and the other parties named therein (incorporated by reference to our Current Report on Form 8-K filed with the Commission on April 29, 2020).
10.15	Fifth Amendment to Loan and Security Agreement dated February 8, 2021 among AtriCure, Inc., Silicon Valley Bank and the other parties named therein (incorporated by reference to our Annual Report on Form 10-K filed on February 26, 2021).
10.16§	Sixth Amendment to Loan and Security Agreement dated November 1, 2021 among AtriCure, Inc., Silicon Valley Bank and other parties named therein (incorporated by reference to our Quarterly Report on Form 10-Q filed on November 4, 2021).

Exhibit No.	Description
10.17#	Form of Performance Share Award Agreement for Awards Granted in 2021 (incorporated by reference to our Annual Report on Form 10-K filed on February 26, 2021).
10.18#	AtriCure, Inc. Executive Leadership Severance Policy (incorporated by referenced to our Annual Report on Form 10-K filed on February 17, 2022).
10.19#	Form of Performance Share Award Agreement for Awards Granted in 2022.
14	Code of Conduct.
21	Subsidiaries of the Registrant.
23.1	Consent of Deloitte & Touche LLP.
31.1	Rule 13a-14(a) Certification of Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Rule 13a-14(a) Certification of Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification pursuant to 18 U.S.C. Section 1350 by the Chief Executive Officer, as adopted, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification pursuant to 18 U.S.C. Section 1350 by the Chief Financial Officer, as adopted, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File

Compensatory plan or arrangement.

§ Certain portions of this exhibit have been omitted pursuant to Item 601(b)(2) of Regulation S-K. The omitted information is not material and would likely cause competitive harm to the Registrant if publicly disclosed. The Registrant hereby agrees to furnish a copy of any omitted portion to the SEC upon request.

ITEM 16. FORM 10-K SUMMARY

Not provided.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this Form 10-K to be signed on our behalf by the undersigned, thereunto duly authorized.

AtriCure, Inc.
(REGISTRANT)

Date: February 22, 2023

/s/ Michael H. Carrel

Michael H. Carrel
President and Chief Executive Officer
(Principal Executive Officer)

Date: February 22, 2023

/s/ Angela L. Wirick

Angela L. Wirick
Chief Financial Officer
(Principal Accounting and Financial Officer)

KNOW ALL WOMEN AND MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Michael H. Carrel and Angela L. Wirick, her or his attorney-in-fact, with the power of substitution, for her or him in any and all capacities, to sign any and all amendments to this Form 10-K, and to file the same, with exhibits thereto and other documents in connection therewith, with the U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done therewith, as fully to all intents and purposes as she or he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact, and any of them or her or his substitute or substitutes, may do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this Form 10-K has been signed by the following persons on behalf of the registrant and in the capacities indicated on February 22, 2023.

Signature	Title(s)
/s/ B. Kristine Johnson **B. Kristine Johnson**	**B. Kristine Johnson** *Chair of the Board*
/s/ Michael H. Carrel **Michael H. Carrel**	**Michael H. Carrel** *Director, President and Chief Executive Officer* *(Principal Executive Officer)*
/s/ Mark A. Collar **Mark A. Collar**	**Mark A. Collar** *Director*
/s/ Regina E. Groves **Regina E. Groves**	**Regina E. Groves** *Director*
/s/ Karen N. Prange **Karen N. Prange**	**Karen N. Prange** *Director*
/s/ Deborah H. Telman **Deborah H. Telman**	**Deborah H. Telman** *Director*
/s/ Sven A. Wehrwein **Sven A. Wehrwein**	**Sven A. Wehrwein** *Director*
/s/ Robert S. White **Robert S. White**	**Robert S. White** *Director*
/s/ Maggie Yuen **Maggie Yuen**	**Maggie Yuen** *Director*