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, 2019

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

Commission File Number 000-51470

AtriCure

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

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 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, 2019, the last business day of the registrant's most recently completed second fiscal quarter as reported on the NASDAQ Global Market, was $1,110.6 million.

Class	**Outstanding February 20, 2020**
Common Stock, $.001 par value	40,048,972

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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This Form 10-K, including the sections titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Risk Factors," 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. 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," "could," "can," "may," "future," "predicts," "target," and similar expressions and the negative versions thereof. 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, and hereby disclaim any and all, obligation to publicly update or revise any forward-looking statements to reflect new information or future events or otherwise unless required by law.

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) and left atrial appendage (LAA) management. Afib affects approximately 1% of the population in the United States. It is the most common cardiac arrhythmia, or irregular heartbeat, encountered in clinical practice and accounts for more doctor visits and hospital days than any other cardiac arrhythmia. 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. 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. Patients often progress from being in Afib intermittently (paroxysmal) to being in Afib continuously (persistent and long standing persistent). Afib often occurs in conjunction with other cardiovascular diseases, including hypertension, congestive heart failure, left ventricular dysfunction, coronary artery disease and valvular disease.

Our products are used by physicians during both open-heart and minimally invasive procedures, either in conjunction with heart surgery for other conditions ("concomitant" to such a procedure), or on a standalone basis. We have several product lines for the ablation of cardiac tissue, including our Isolator® Synergy™ Ablation System, the first and only surgical device approved by the United States Food and Drug Administration (FDA) for the treatment of persistent and long-standing persistent forms of Afib in patients undergoing certain open concomitant procedures. We also offer a variety of minimally invasive ablation devices and access tools to facilitate less invasive cardiac and thoracic procedures. Our cryoICE® cryosurgery product line offers a variety of cryoablation devices for use in multiple types of cardiothoracic surgery. Our AtriClip® LAA Exclusion System is a device specifically designed to exclude the heart's left atrial appendage.

We believe that we are currently the market leader in the surgical treatment of Afib. Our Isolator Synergy System is approved by FDA for the treatment of persistent and long-standing persistent Afib concomitant to other open-heart surgical procedures. All of our other ablation devices are cleared for sale in the United States under FDA 510(k) clearances, including our other RF and cryoablation products, which are indicated for the ablation of cardiac tissue and/or the treatment of cardiac arrhythmias. In addition, certain of our cryoablation probes are cleared for managing pain by temporarily ablating peripheral nerves. Our AtriClip 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 is able to see the heart directly, with or without assistance from a camera, endoscope or other appropriate viewing technologies. The LARIAT® system is cleared for soft tissue ligation and is currently being studied to support an indication of exclusion of the LAA in patients with persistent and long-standing persistent Afib also undergoing a pulmonary vein isolation. We also offer reusable surgical instruments typically used in cardiac valve replacement or repair. Our Isolator Synergy clamps, Isolator Synergy pens, Coolrail® linear pen, cryosurgery devices, certain products of the AtriClip LAA Exclusion System, COBRA Fusion® Ablation System, Numeris™ System, the EPi-Sense® Guided Coagulation System with VisiTrax® technology, and LARIAT Suture Delivery Device 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. Our Isolator Synergy clamps, Isolator Synergy pens, Coolrail linear pen, cryosurgery devices, and certain

products of the AtriClip LAA Exclusion System are available in select Asia-Pacific countries. 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 and the Benelux region. We also sell our products to distributors who in turn sell our products to medical centers in other international markets. Our business is primarily transacted in U.S. Dollars with the exception of transactions with our European customers, which are transacted primarily in the Euro or the British Pound.

Market Overview

Afib is the most commonly diagnosed sustained cardiac arrhythmia, and affects approximately 33 million people worldwide, including six million in the United States. It is estimated that the incidence of Afib doubles with each decade of an adult's life. At age 40, remaining lifetime risk for Afib is 26% for men and 23% for women. 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 only diagnosed when they seek treatment for an associated condition, such as a structural heart disease or stroke. We believe that increasing awareness of Afib and improved diagnostic screening will result in an increased number of patients diagnosed with Afib. Recently, there have been several new diagnostic technologies introduced in the United States that allow for less invasive screening options, which should assist patients with more proactive identification of Afib. 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 the same trends in the United States apply globally, as the incidence of Afib is increasing as the population ages in many geographies.

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, which are typically classified as "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 around the world. Societal guideline changes from the Society of Thoracic Surgeons (STS), Heart Rhythm Society (HRS), and American Associated of Thoracic Surgery (AATS) have Class I recommendations for surgical ablation, meaning that it is a "recommended" treatment, no longer just "reasonable", for patients who have structural heart disease and Afib. These societal guidelines are reflective of the scientific evidence suggesting that surgical ablation is safe and effective for all structural heart patients who also have Afib.

Of the patients undergoing open-heart surgery globally on an annual basis, we estimate that over 250,000 are potential candidates for surgical ablation using our products. Today, we estimate that approximately 25% to 35% of those candidates are being treated, but we believe many are not treated properly or fully. Of the population diagnosed with Afib, a large percentage of patients are symptomatic and do not respond to pharmacological therapy. Additionally, there is a large population of patients who have no other underlying cardiac disease but who suffer from serious forms of Afib. Many of these patients fail traditional therapies, and thus we believe could benefit from a minimally invasive or multi-disciplinary ("hybrid") Afib treatment using our products.

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. 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 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 the AtriClip system represents a significant growth opportunity in the cardiac surgery market.

Cardiothoracic surgery involving an incision through the ribcage, typically referred to as thoracotomy access, can often times result in post-operative pain and longer hospital recovery times as patients refrain from mobilizing their chest near the incision site. Most cardiothoracic surgeons will employ a multi-modal pain management protocol that includes global and local pain management techniques. Global techniques include epidural delivery of medication directly around the spinal cord, intravenous, or oral delivery of opioid and non-opioid pain medications. Local, more focused, techniques include syringe injections between vertebrates and cryo nerve block, the use of cryo-energy to temporarily ablate peripheral nerves. Cryo nerve block can be delivered using our cryoICE cryoSPHERE® probe, which is specifically designed for cryo nerve block, as well as our cryoICE CRYO2 probe, one of the same probes used to treat cardiac arrhythmias. Depending on the degree of invasiveness of the cardiothoracic surgery, physicians and their nursing staff will take advantage of multiple modes of pain management. It is estimated that each year roughly 140,000 cardiac and thoracic procedures are performed in the United States through thoracotomy access. 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. In recent years, opioids have come under heavy scrutiny due to their potential for long-term dependency, overdose and possible death. The Center for Disease Control has reported over 42,000 deaths involving opioids in the United States in a single year, and 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, increasingly important.

The AtriCure Solution and Products

We believe the surgical and catheter-based ablation devices currently marketed by our competition are not ideal for safely, rapidly and reliably creating lesions that completely and permanently block the abnormal electrical impulses that cause Afib, particularly for patients with more severe forms of Afib or patients who have failed single or multiple catheter ablations. Our products enable cardiothoracic surgeons to mimic all or portions of the cut and sew 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 products to treat Afib. Leading cardiothoracic surgeons and electrophysiologists, including those who serve or who have served as consultants to us, have published results of initial clinical studies utilizing our devices. The results of these studies have assessed efficacy, ease of use and safety endpoints.

We also offer product lines for left atrial appendage management and open and minimally invasive cardiac tissue ablation. Products for cardiac tissue ablation are characterized as either those that heat tissue using Radio Frequency (RF) energy to create the tissue effects or those that cool tissue using cryo-thermal heat transfer to create the tissue effects. Our products fall into platforms each consisting of disposable handpieces which connect to compact RF power generation sources or the cryoICE Box generator that we generally place with our direct customers and sell to our distributors.

Products for open and minimally invasive ablation:

- **Isolator Synergy Clamps.** Our Isolator Synergy System represents our primary product line and currently generates the majority of our RF ablation-related revenue. All of our clamps are single-use disposables and have jaws that close in a parallel fashion. We sell multiple configurations of our Isolator Synergy clamps with the primary difference being the form of the clamping jaws. The parallel closure compresses tissue and evacuates the blood and fluids from the energy pathway in order to make the ablation more effective. The Isolator Synergy System is currently being evaluated under the DEEP AF IDE pivotal trial.
- **Multifunctional Pens and Linear Ablation Devices.** These devices are single-use disposable RF products that come in multiple configurations which have different contact lengths and are powered by an RF generator. 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 are able to readily toggle back and forth between these functions. 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.

Products for open ablation:

- **cryoICE Cryoablation System.** The cryoICE cryoablation system is used in open ablation procedures and consists of the cryoICE Box generator along with a single-use disposable probe. The primary differences between these cryoablation probes is the form of the distal end. The cryoICE devices enables the user to make linear ablations of varied lengths. Surgeons may utilize the cryoICE devices in combination with Isolator Synergy clamps or independently. 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. The cryoSPHERE system is used to apply cryo-energy to targeted intercostal peripheral nerves in the ribcage in order to provide temporary pain relief. This technique, called cryo nerve block, is applied intra-operatively by the cardiothoracic surgeon 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. Studies are ongoing to characterize the effects of cryo nerve block and further refine the procedure.

Products for minimally invasive ablation:

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

Products for appendage management:

AtriClip System. The AtriClip System includes 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, eliminating blood flow between the left atrial appendage and the atrium while avoiding contact with circulating blood. We believe that the AtriClip system is potentially safer, more effective and easier to use than other

available products and techniques for permanently excluding the left atrial appendage. These benefits compared to other techniques include permanent exclusion and electrical isolation of the appendage. The AtriClip device comes in a variety of lengths allowing the user to select a configuration specific to the patient and in two geometries (rectangular and "V" shape). The appliers come in multiple forms tailored to specific procedural needs and with different deployment mechanisms. The AtriClip System includes various combinations of AtriClips and appliers.

LARIAT System. The LARIAT System is a suture-based solution for soft-tissue closure and is compatible with a wide range of anatomical shapes. The Lariat System includes a suture loop coupled to a single-use disposable applier. The loop is designed to occlude the left atrial appendage by mechanically cinching the appendage from the outside of the heart, eliminating blood flow between the left atrial appendage and the atrium while avoiding contact with circulating blood. The product is currently being studied in the aMAZE clinical trial, the aim of which is to determine if the combination of two percutaneous procedures, including using the LARIAT to exclude the left atrial appendage along with pulmonary vein isolation using an endocardial catheter ablation device, may treat persistent or long-standing persistent atrial fibrillation more effectively than pulmonary vein isolation alone.

In addition to the above product lines we also sell enabling technologies including our Lumitip™ dissectors, COBRA Fusion Surgical Ablation System, the Fusion Magnetic Retriever System and a line of reusable cardiac surgery (valve) instruments. The Lumitip dissector is used by surgeons to separate tissues to provide access to key anatomical structures that are targeted for ablation. The COBRA Fusion Surgical Ablation System's Versapolar technology combines bipolar temperature-controlled RF energy with monopolar energy and incorporates a unique suction design to draw tissue in to assure stable contact and optimize ablation performance. The Fusion Magnetic Retriever System™ allows access around key anatomical structures and facilitates positioning of the Cobra Fusion Surgical Ablation System™. Cardiac surgery instruments are used during certain surgical procedures for repair or replacement of heart valves.

Current Afib Treatment Alternatives

Physicians usually begin treating Afib patients with a variety of drugs intended to prevent blood clots, control heart rate or restore the heart to normal sinus rhythm. If a patient's Afib cannot be adequately controlled with drug therapy, doctors may perform one of several open-heart or minimally-invasive procedures that vary depending on the severity of the Afib symptoms and whether or not the patient suffers from other forms of heart disease.

Alternative treatments to open-heart and minimally invasive procedures include:

- *Drugs.* Pharmaceutical options called anti-arrhythmics are available to treat Afib. Depending on a patient's severity of the disease and heart condition, physicians typically administer these medications in a hospital setting with continuous monitoring. If the patient goes back into a normal rhythm, the physician will often prescribe a similar anti-arrhythmic drug to try to prevent a recurrence of Afib. The effectiveness of drug therapy varies based on the patient population and the drug being prescribed, among other factors. Often, pharmaceuticals to thin the blood (anti-coagulants) are prescribed due to the increased risk of stroke for patients who also have Afib.
- *Implantable Devices.* Implantable devices, such as defibrillators and pacemakers, can be effective in reducing the symptoms of Afib episodes, but neither device is intended to treat Afib. Patients may continue to experience the adverse effects of Afib as well as some of the symptoms and complications, including dizziness, fatigue, palpitations and stroke because the Afib continues.
- *Catheter Ablation.* Catheter ablation is a procedure that is typically performed by an electrophysiologist. The ablations are made from the inside of the heart using a flexible catheter. The heart is reached via a blood vessel, most commonly through the femoral vein. In proportion to the prevalence of Afib, only a small number of catheter-based Afib treatments are performed each year in the United States.

We do not promote our products specifically for Afib treatment in the United States, except for the Isolator Synergy System, which may be promoted according to its FDA-approved indication for patients with persistent and long-standing persistent Afib undergoing certain open concomitant procedures. During elective open-heart surgical procedures, such as bypass or valve surgery, cardiothoracic surgeons use our ablation systems to treat patients with a pre-existing history of Afib. Surgeons use our products to perform cardiac procedures that may vary depending on the length of time a patient has been diagnosed with Afib and whether the patient's Afib is intermittent, known as paroxysmal, or more continuous (non-paroxysmal), which is typically further classified as persistent, long-standing persistent or permanent. Patients who have been diagnosed with Afib for a longer duration and have non-paroxysmal forms of Afib generally receive more extensive ablation procedures than patients who have been diagnosed with Afib for a shorter duration or who have paroxysmal Afib. Additionally, during an open-heart procedure, physicians may use our AtriClip system to exclude the left atrial appendage.

For those patients with Afib who do not require a concomitant open-heart surgical procedure, surgeons have used our products for minimally invasive Afib treatment procedures. These procedures have generally been performed through minimally invasive

incisions without the need to place patients on a heart-lung bypass machine. We do not currently have any products with FDA-approved indications for the standalone treatment of Afib.

Certain physicians are combining various minimally invasive stand-alone epicardial ablation procedures (surgical ablation on the outside of the heart) with endocardial ablation and mapping techniques (catheter ablation from the inside of the heart). These combination procedures are often referred to as "hybrid" or "multi-disciplinary" approaches, in that both surgical ablation and catheter ablations are performed. Sometimes, both procedures are performed on the same day or in the same hospital stay, where other times they are performed days or weeks apart. Patient health condition, physician preference, hospital logistics and procedural room availability influence the decision whether to perform hybrid ablations in a single or a staged setting. Physicians are reporting that they are performing these procedures utilizing certain of our products to primarily treat patients who have non-paroxysmal forms of Afib.

Business Strategy

We are passionately focused on reducing the global Afib epidemic and healing the lives of those affected. Our strategy is to expand the treatment options for patients who suffer from Afib or have a high risk of stroke 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 market opportunities or expand our growth in existing markets.

Invest in Clinical Science. We continue to invest in landmark clinical trials, including the CONVERGE, aMAZE and ICE-AFIB IDE 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 and thoracic surgeons who work with us to evaluate and develop our products. Additionally, we have formed advisory boards made up of key opinion leaders in multiple specialties to oversee our training and clinical programs. We are building these relationships 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 three 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 for the treatment of non-paroxysmal Afib, 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. We believe this training and education program has increased awareness about the surgical treatment of Afib during open-heart procedures, 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 Minimally Invasive Products. We believe that the catalysts for expanded adoption of our minimally invasive products include completing clinical trials, including the CONVERGE and DEEP AF IDE clinical trials, procedural advancements, such as the hybrid or multi-disciplinary procedure, continued innovation and product development, and the publication of additional scientific evidence supporting the safety and efficacy of hybrid treatments for persistent and long-standing persistent Afib. We believe these efforts will help validate the successful, long-term use of our products for patients with persistent and long-standing persistent Afib. We believe that ongoing research activities, including prospective clinical trials, new procedural techniques and anticipated presentations and publications will create an increased demand for our minimally invasive 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 investment in clinical science, product innovation and strategic and financial considerations.

Clinical Trials

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. An IDE supplement is a means of obtaining approval to initiate a pivotal trial following the conclusion of a feasibility 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:

CONVERGE. We are conducting 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. The trial provides for enrollment of up to 153 patients at 27 domestic medical centers and three international medical centers. Enrollment began in 2014 and was completed in August 2018. The study protocol requires patient follow-up for twelve months post procedure for the primary effectiveness endpoint assessment and long-term follow-up through five years. The final PMA module was submitted in late 2019. In September 2019, we received approval for the Continued Access Protocol (CAP) for the CONVERGE study. The CAP is a single arm study of patients undergoing hybrid ablation only and currently provides for initial enrollment of up to 30 patients at 27 domestic sites, with the possibly of expanding the CAP study to enroll additional patients by submitting an IDE Supplement to FDA. Enrollment in the CONVERGE CAP is expected to begin in early 2020.

aMAZE. In connection with our acquisition of SentreHEART, which we describe below, we are conducting the aMAZE IDE clinical trial. aMAZE is an FDA-approved, prospective, multicenter, randomized controlled trial evaluating the LARIAT Suture Delivery Device for LAA closure adjunctive to Pulmonary Vein Isolation (PVI) catheter ablation for the treatment of persistent and long-standing persistent Afib. The objective of the aMAZE Trial is to demonstrate that using the LARIAT device for LAA closure, plus a PVI ablation, will lead to a reduced incidence of recurrent Afib compared to PVI alone, with a favorable safety profile. The aMAZE Trial provides enrollment of up to 600 patients at 65 sites with one-year follow up. Primary endpoint measures are freedom from episodes of Afib greater than 30 seconds at one-year post treatment. Enrollment of 600 patients across 53 sites was completed in December 2019. In January 2020, we received approval for a CAP for the aMAZE study. The aMAZE CAP provides for additional patient enrollment of up to 85 patients at existing aMAZE trial sites, with the opportunity to further expand to 250 patients while the pre-market application is under review. We acquired SentreHEART, a privately held developer of percutaneous left atrial appendage management solutions sponsoring the aMAZE trial, in a merger on August 13, 2019.

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. We received IDE approval from FDA to proceed with the ICE-AFIB trial in November 2018. Enrollment began in February 2019 and remains ongoing.

ATLAS. The ATLAS study is a non-IDE randomized pilot study evaluating outcomes of patients with risk factors for developing postoperative Afib as well as risk of bleeding on oral anticoagulation. There are two types of patients subject to this study: those with a postoperative Afib diagnosis and receiving prophylactic exclusion of the left atrial appendage with the AtriClip device concomitant to cardiac surgery and those with a postoperative Afib diagnosis who are medically managed. Enrollment began in February 2016 and ended in March 2018. Preliminary data was presented at the Heart Rhythm Society meeting in May 2019, and a manuscript of the final results is being drafted for publication.

FROST. We have conducted a cryo nerve block study, which was a non-IDE randomized pilot study evaluating intraoperative intercostal cryoanalgesia. The study involves treatment arm patients who received intercostal cryoanalgesia in conjunction with standard post-operative pain management and control arm patients who receive standard post-operative pain management only. The study provided for enrollment of up to 100 patients at five medical centers. Enrollment began in June 2016 and an interim data analysis was completed when a total of 80 patients were enrolled in 2019. Enrollment was stopped following the interim analysis due to early achievement of statistical significance. Results from the trial were presented at the Society of Thoracic Surgeons podium in January 2020 and will be published in *The Annals of Thoracic Surgery*.

DEEP AF Pivotal Study. The DEEP AF IDE pivotal trial evaluates the safety and efficacy of the Isolator Synergy System when used in a staged approach where a minimally invasive surgical ablation procedure is first performed and the patient undergoes the intracardiac catheter procedure approximately 90-120 days later. The study began in 2014 and was paused during 2016-2017 due to our work to mitigate the risk related to esophageal injury during the procedure. We are committed to patient safety, and we worked collaboratively with FDA and obtained approval to resume enrollment in the trial in 2018. A total of 70 patients have been treated, and we have FDA approval to enroll an additional 18 patients. We plan to seek approval to enroll the full cohort of 220 patients, pending FDA's review of additional safety data.

CEASE AF. We are also pursuing a non-IDE trial in Europe to compare staged hybrid ablation treatment (minimally invasive surgical ablation procedure is first performed and the patient undergoes the intracardiac catheter procedure approximately 91-180 days later) versus catheter ablation alone. We expect the study to have an enrollment of approximately 210 patients at twelve sites. Enrollment began in November 2015 and remains ongoing.

Sales, Marketing and Medical Education

Our global sales and marketing efforts focus on educating physicians about our unique technologies and their technical benefits. We only promote our products for uses described in their labeling as cleared or approved by the relevant regulatory agencies. We 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 160 employees supporting approximately 53 sales territories. We select our sales personnel based on their expertise, sales experience and reputation in the medical device industry, and their knowledge of cardiac surgery procedures and technologies.

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

Competition

Our industry is competitive, subject to change and significantly affected by new product introductions and other activities of industry participants. Most of our competitors have greater financial and human resources than we do and have established reputations with our target customers, as well as worldwide distribution channels that are more established and developed than ours. Our primary competitor in the cardiac surgery market is Medtronic, plc, who provides similar products to ours that have been adopted by physicians for the treatment of Afib and related conditions. 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 form of Afib, but they are not FDA indicated to treat persistent or long-standing persistent Afib. AtriCure's Isolator Synergy System is the only medical device that is FDA approved to treat Afib in a surgical setting, and the only medical device approved to treat persistent or long-standing persistent Afib in a concomitant setting. 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. We believe that our products compare favorably against competing products during both open-heart and minimally invasive procedures, and that our products compare favorably to intracardiac catheter devices when used to treat non-paroxysmal forms of Afib.

To compete effectively, we strive to demonstrate that our products are an attractive alternative to other treatments by differentiating our products on the basis of safety, efficacy, performance, ease of use, reputation, service and price. In addition, we invest heavily in training and education to ensure that our customers understand available devices, techniques, and approaches for optimal treatment. We have encountered and expect to continue to encounter potential customers who prefer products offered by our competitors.

Third-Party Reimbursement

Payment for patient care 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, such as 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 LAA exclusion device (LAAM) is used during a concomitant open-heart procedure, Medicare's hospital reimbursement is based upon the patient's primary structural heart surgical procedure. Therefore, any additional procedure concomitant to the primary procedure would not receive incremental hospital payment. In contrast, sole therapy minimally invasive ablation or surgical LAAM procedures typically are reimbursed under a general cardiac surgery MS-DRG. We believe hospital reimbursement rates for sole therapy and concomitant therapy cardiac surgical ablation or LAAM are adequate to cover the cost of our products even when multiple procedures are performed.

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. At this

time, there are no category one CPT codes for the physician to report 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 engage a third-party reimbursement consultant that provides 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 initiatives 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 that are performed on our behalf, to ensure that medical products distributed domestically or exported internationally are safe and effective for their intended uses. The FDA regulates the total product lifecycle from early design, development and testing to support submissions for clearance or approval, to 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, manufacturing and labeling, to demonstrate the safety and effectiveness of the device for its intended use. A new PMA or PMA supplement is required for significant modification to a PMA-approved device, including indicated use, manufacturing process, labeling and design of a device that is approved through the premarket approval process.

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 state and federal privacy and human subject protection regulations.

Educational Grants. FDA regulates the promotion of medical devices by manufacturers. FDA does not regulate the practice of medicine or the conduct or content of medical education conducted by third parties. Manufacturers may provide financial support for such 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 the activities we support pursuant to our educational grants program are in accordance with FDA criteria for independent educational activities. However, we cannot provide an assurance that FDA or other government authorities would view the 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's Quality System Regulation (QSR), including, but not limited to: labeling, advertising and promotion, assessing the significance of change to devices, reporting of device modifications when necessary, monitoring the safety of the product, and performing corrections and removals when necessary.

In addition to FDA regulation, the advertising and promotion of 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 criminal law that applies broadly and prohibits the knowing and willful 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.

Progressively, many countries that did not previously have medical device regulations have adopted them, and minimal requirements previously in place are becoming more stringent worldwide. While some harmonization of global regulations has taken hold, requirements continue to differ significantly. In China, for example, the product must first have approval in the country of origin. In Japan and China, successful results from local product safety testing precedes submission of documentation to obtain approval. 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, 2020 for all devices seeking CE mark after that date. The method for assessing conformity varies depending on the type and class of the product, but typically involves a combination of self-assessment by the manufacturer and a third-party assessment by a 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 is as extensive as the documentation requirements that the US 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.

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.

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 California, 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 delays in obtaining any of our components.

We regularly audit our suppliers for compliance with our quality system requirements, the QSR and/or applicable 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

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.

Our physician consulting agreements are intended to satisfy the requirements of the personal services “Safe Harbor” regulation as well as the AdvaMed and MedTech Europe Codes. 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.

Employees

We had approximately 730 full-time employees as of January 31, 2020. None of the employees were represented by a labor union or covered by a collective bargaining agreement. We have never experienced any employment-related work stoppages and consider our employee relations to be in good standing.

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

Risks Relating To Our Business and Industry

We rely on our ablation and left atrial appendage management products as our primary sources of revenue. If we are not successful in selling these products our operating results will be harmed.

Our ablation and our left atrial appendage management products 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 a standard treatments for Afib and managing the LAA. Since we believe that physicians are using our ablation products largely for surgical treatment of Afib, if physicians do not use our products to treat Afib, we would lose substantially all of our revenue. We may not be able to maintain or increase market acceptance of our products for a number of reasons, including those set forth elsewhere in this "Risk Factors" section.

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 will depend, in large part, on the medical community's acceptance of our principal products in the United States, which is the largest revenue market in the world for medical devices. 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 screening for Afib general 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 the use of our products.

We cannot predict whether the U.S. medical community will accept our products or, if accepted, the extent of their use. Negative publicity resulting from incidents involving our products, other products related to those we sell or products or procedures subject to our clinical trials 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, subject to rapid technological change and significantly affected by new product introductions and promotional activities of its participants. There is no assurance that our products will compete effectively against drugs, catheter-based ablation, implantable devices, other ablation systems, other products or techniques to occlude the left atrial appendage, or other surgical Afib treatments, which may be more well-established among physicians and hospitals. 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 a prior generation, 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, such other products or techniques may be sold or implemented at lower prices. Due to the size of the Afib and LAA exclusion markets, and the unmet need for an Afib cure, 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 before we do. The introduction of new products, procedures or clinical solutions, or of 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.

Worldwide economic conditions may reduce demand for procedures using our products or otherwise result in adverse implications on our business, operating results and financial condition.

General worldwide economic conditions may deteriorate due to the effects of, among other developments, general credit market crises, collateral effects on the finance and banking industries, concerns about inflation, slower economic activity which may be caused by many factors, including natural disasters or other catastrophes, decreased consumer confidence, reduced corporate profits and capital spending, adverse business conditions and liquidity concerns. We are unable to predict the extent to which current or future worldwide economic conditions may impact our business. Specifically, because many procedures using our products are elective, they can be deferred by patients. In addition, patients may not be as willing under current or future economic conditions to take time off from work or spend their money on deductibles and co-payments often required in connection with the procedures that use our products.

Beyond patient demand, any current or future deterioration in worldwide economic conditions, including in particular their effects on the credit and capital markets, may have other adverse implications for our business. For example, 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. Although we maintain allowances for estimated losses resulting from the inability of our customers to make required payments, we cannot guarantee that we will accurately predict the loss rates we will experience, especially given any continuing turmoil in the worldwide economy. A significant change in the liquidity or financial condition of our customers could cause unfavorable trends in our receivable collections and additional allowances may be required, which could adversely affect our operating results. Further, given the economic and political challenges facing Eurozone countries, concerns have been raised regarding the stability and suitability of the Euro as a single currency. The failure of the Euro as a single currency could adversely affect our operating results. See "The United Kingdom's withdrawal from the European Union may have a negative effect on global economic conditions, financial markets and out 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 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.

We face significant uncertainty in the industry due to government healthcare reform.

The U.S. Patient Protection and Affordable Care Act (PPACA), as amended, and other healthcare reform have a significant impact on our business. The impact of the PPACA on the healthcare industry is extensive and includes, among other things, the federal government assuming a larger role in the healthcare system, expanding healthcare coverage of United States citizens and mandating basic healthcare benefits. The PPACA impacted our business by requiring an excise tax on all U.S. medical device sales beginning in January 2013 until suspended January 1, 2016 ; this excise tax was permanently repealed in December 2019. When in effect, the increased tax burden from the PPACA impacted our results of operations and cash flows.

It is possible that legislation will be introduced and passed by Congress repealing the PPACA in whole or in part and signed into law. Because of the continued uncertainty about the implementation or continued effectiveness of the PPACA, including the potential for further legal challenges or repeal of that legislation, we cannot quantify or predict with any certainty the likely impact of the PPACA or its repeal on our business model, prospects, financial condition or results of operations.

Any healthcare reforms enacted in the future may, like the PPACA, be phased in over a number of years but, if enacted, could reduce our revenue, increase our costs or require us to revise the ways in which we conduct business or put us at risk for loss of business. In addition, our results of operations, financial position and cash flows could be materially adversely affected by changes under the PPACA and changes under any federal or state legislation adopted in the future.

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.

In addition, our business practices in foreign countries must comply with U.S. laws, including the Foreign Corrupt Practices Act (FCPA). 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. If violations were to occur, they could subject us to fines and other penalties as well as increased compliance costs.

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.

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

Many foreign countries which 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.

Manufacturers must demonstrate that their devices conform to the relevant essential requirements through a conformity assessment procedure. The nature of the assessment depends upon the classification of the device. The classification rules are mainly based on three criteria: the length of time the device is in contact with the body, the degree of invasiveness and the extent to which the device affects the anatomy. Conformity assessment procedures for all but the lowest risk classification of device involve a notified body. Notified bodies are often private entities and are authorized or licensed to perform such assessments by government authorities. Manufacturers usually have some flexibility to select a notified body for conformity assessment procedures for a particular class of device and to reflect their circumstances, e.g., the likelihood that the manufacturer will make frequent modifications to its products. Conformity assessment procedures require an assessment of available clinical evidence, literature data for the product and post-market experience in respect of similar products already marketed. Notified bodies also may review the manufacturer's quality systems. If satisfied that the product conforms to the relevant essential requirements, the notified body issues a certificate of conformity, which allows the general commercializing of a product in the EU. The product can also be subjected to local registration requirements

depending on the country. We maintain CE Marking on all of our products that require such markings as well as local registrations as required.

In May 2017, the EU adopted a new Medical Device Regulation (EU) 2017/745 (MDR), which will repeal and replace the MDD with effect from May 26, 2020. 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, 2020 may continue to be placed on the market for the remaining validity of the certificate, until May 27, 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. See also, "The United Kingdom's withdrawal from the European Union may have a negative effect on global economic conditions, financial markets and our business."

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

Due to current worldwide economic conditions, natural disasters and other factors discussed in this "Risk Factors" section which may impact our sales results, our quarterly operating results are 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.

Surgeons may not commit enough time to sufficiently learn our products, and restrictions in our ability to train surgeons in the use of our products could reduce the market acceptance of our products and in turn could reduce our revenue or result in injuries to patients or other adverse events that could possibly lead to litigation that could harm us.

It is critical to the success of our sales efforts to ensure that there are a sufficient number of surgeons familiar with, trained on and proficient in the use of our products. In order for surgeons to learn to use our products, they must attend structured training sessions in order 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 state or institutional restrictions on our ability to provide training.

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. Our Isolator Synergy System is approved for the treatment of persistent and long-standing persistent forms of Afib concomitant to open-heart bypass graft or valve replacement surgery. The procedure using our Isolator Synergy System in this manner is known as the MAZE IV procedure. Following FDA approval, we instituted a program to train all new and existing users of the Isolator Synergy System in the MAZE IV procedure. We also make available training on the safe and effective use of our other products consistent with their FDA approved or cleared indications. We cannot assure that we will be able to maintain a consistent level of funding for these training programs or a sufficient number of surgeons will become aware of training programs. An inability to train a sufficient number of surgeons to generate adequate demand for our products could have a material adverse impact on our financial condition.

Our marketing strategy is dependent on collaboration with physician "thought leaders".

Our research and development efforts and our marketing strategy depend heavily on obtaining support, physician training assistance and collaboration from highly-regarded physicians at leading commercial and research hospitals, particularly in the U.S. and Europe. If we are unable to gain and/or maintain such support, training services and collaboration, or if the reputation or standing of these physicians is impaired or otherwise adversely affected, 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.

Unless and until we obtain additional FDA approval for our products, we will not be able to promote most of them to treat Afib or to prevent stroke, and our ability to maintain and grow our business could be harmed.

Although our Isolator Synergy System 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. See "Business—Government Regulation". Unless and until we obtain FDA clearance or approval for the use of our products to treat Afib or prevent stroke, we, and others acting on our behalf, may not claim in the U.S. that our products are safe and effective for such uses or otherwise promote them for such uses. Similar restrictions 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.

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. In addition, if the results obtained from our clinical trials, any other clinical studies, or clinical or commercial experience indicate that any of our products are not safe or effective, or not as safe or effective as other treatment options, FDA may not approve our products for the treatment of Afib or reduction in stroke risk, and the adoption of the use of our products may suffer and our business would be harmed.

Our clinical trials are typically time consuming, expensive and the outcome uncertain. 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. For example, patients may be discouraged from enrolling in our clinical trials if the trial protocol requires them to undergo extensive post-treatment procedures or follow-up to assess the safety and effectiveness of our products or if they determine that the treatments received under the trial protocols are not attractive or involve unacceptable risks or discomforts. Patients may also not participate in our clinical trials if they choose to participate in contemporaneous clinical trials of competitive products or they can obtain the treatment without participating in our trial.

We may experience unfavorable publicity relating to our business and 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 and concerns over disclosure of financial relationships between us and certain of our consultants who are involved with clinical studies and the publication of articles concerning our products. 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 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 or prevention of stroke. 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.

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 Federal Food, Drug and Cosmetic Act (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. In addition, as a result of an enforcement action against us or our executive officers, we could be excluded from participation in government healthcare programs such as Medicare and Medicaid.

We are currently under investigation by the United States Department of Justice, and any adverse finding, allegation, or exercise of enforcement or regulatory discretion by the DOJ 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 U.S. Department of Justice (DOJ) 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 Afib. The CID covers the period from January 2010 to December 2017 and requires 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 DOJ with documents and answers to the written interrogatories and is cooperating with the investigation. However, the Company cannot predict when the investigation will be resolved, the outcome of the

investigation or its potential impact on the Company. While the Company believes its practices are lawful, there can be no assurance that the DOJ's ongoing investigation or future exercise of its enforcement, regulatory, discretionary or other powers will not result in findings or alleged violations of federal laws that could lead to enforcement actions, proceedings or litigation and 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 or on terms substantially similar to those on which it currently operates.

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 products we sell may result in a variety of serious complications, including damage to the heart, internal bleeding, death or other adverse events, potentially leading to product liability claims. 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 product 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 or we have inadvertently or otherwise 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, our 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.

The increase in cost of medical malpractice premiums to physicians and hospitals or the lack of malpractice insurance coverage due to the use of our products by physicians for an off-label indication may cause certain physicians or hospitals to decide not to use our products and may damage our ability to maintain or grow the market for our products.

Insurance carriers have been raising premiums charged for medical malpractice insurance due, at least in part, to increased risks associated with off-label procedures, including higher damage awards for successful plaintiffs. Insurance carriers may continue to raise premiums or they may deny malpractice coverage for procedures performed using products such as ours on an off-label basis. If this trend continues or worsens, our revenue may fall as physicians or hospitals decide against purchasing our products due to the cost or unavailability of insurance coverage.

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

We have incurred net losses each year since our inception, including, most recently, net losses of $35,194 in 2019, $21,137 in 2018 and $26,892 in 2017. As of December 31, 2019, we had an accumulated deficit of $282,197.

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 will 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 capital needs after the next twelve months are uncertain, and we may need to raise additional funds in the future and such funds may not be available on acceptable terms, if at all.

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 projected capital requirements for at least the next 12 months. Our Loan and Security Agreement with Silicon Valley Bank (SVB), as amended and restated effective February 23, 2018 and as further amended December 28, 2018, and August 12, 2019 (the "Loan Agreement"), provides for a $60,000 term loan and $20,000 revolving line of credit. The term loan and revolving credit facility both mature in August 2024. According to the Loan Agreement, principal payments on the term loan are to be made ratably commencing March 1, 2021 through the loan's maturity date of August 1, 2024. If we meet certain conditions, as specified by the agreement, the commencement of term loan principal payments may be deferred by an additional six months. The term loan accrues interest at the greater of the Prime Rate and 5.00% plus 0.75%. As of December 31, 2019, we had outstanding borrowings under the term loan of $60,000. Borrowing availability under the revolving credit facility is based on the lesser of $20,000 or a borrowing base calculation as defined by the Loan Agreement. We may not draw on the revolving line of credit without SVB's consent if the obligations in the aggregate under the Loan Agreement would exceed $70,000 after the incurrence of such requested withdraw. The applicable interest rate on advances outstanding under the revolving credit facility is the greater of the Prime Rate and 5.00%. The Loan Agreement also provides for certain prepayment and early termination fees, as well as establishes a minimum liquidity covenant and includes other customary terms and conditions. As of December 31, 2019, we had no borrowings under the revolving credit facility, and we had borrowing availability of $8,750.

The nContact acquisition also provided for contingent consideration to be paid upon attaining specified regulatory approval in the coming year. Subject to the terms and conditions of the nContact merger agreement, such contingent consideration is paid in AtriCure common stock and cash, with a requirement to make payments in AtriCure common stock first, up to a specified maximum number of shares. Over the next twelve months, we do not expect our cash requirements to include significant payments of contingent consideration based on terms of the acquisition agreement and related milestones. Significant changes to the estimated consideration to be paid could result in a substantial increase in liabilities for contingent consideration and our accumulated deficit and reduce our net income or increase our net loss for the year in which the changes occur, which could contribute to difficulty in raising additional funds. The issuance of our stock to nContact shareholders to settle contingent consideration obligations would dilute the holdings of our existing stockholders.

We believe we have adhered to the nContact contract provisions that provide for contingent consideration if the conditions described above are met. nContact representatives have disputed, and in the future may dispute our adherence to the contract and pursue a claim for non-adherence which could involve complex legal and factual issues, the determination of which is often uncertain.

Any such claim, 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, adverse publicity, the disruption of development and marketing efforts, injury to our reputation and adversely impact our financial condition.

The SentreHEART acquisition provided for contingent consideration to be paid upon attaining specified clinical and reimbursement milestones on or before December 31, 2026. All contingent consideration will be payable in a combination of cash and stock, with the maximum number of shares that may be issued pursuant to the SentreHEART merger agreement limited to 19.9% of AtriCure's total shares outstanding as of the date of merger. The maximum contingent consideration payable by us will not exceed $260,000. Over the next twelve months, we do not expect our cash requirements to include significant payments of contingent consideration based on terms of the acquisition agreement and related milestones. Significant changes to the estimated consideration to be paid could result in a substantial increase in liabilities for contingent consideration and our accumulated deficit and reduce our net income or increase our net loss for the year in which the changes occur, which could contribute to difficulty in raising additional funds. The issuance of our stock to SentreHEART shareholders to settle contingent consideration obligations would dilute the holdings of our existing stockholders.

If we need to raise additional funds for any reason, we cannot be certain that such funds will be available to us on acceptable terms, if at all. Furthermore, if we issue equity securities to raise additional funds, our existing stockholders will experience dilution, and if we issue equity or debt securities, such securities may have rights, preferences and privileges senior to those of our existing stockholders. In addition, if we raise additional funds through collaboration, licensing or other similar arrangements, it may be necessary to relinquish potentially valuable rights to our future products or proprietary technologies or grant licenses on terms that are not favorable to us. If we cannot raise funds on acceptable terms, we may not be able to expand our operations, develop new products, take advantage of future opportunities or respond to competitive pressures or unanticipated customer requirements.

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

Our Loan Agreement with SVB contains a minimum liquidity covenant 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.

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.

On June 30, 2001, we experienced an ownership change as defined by Section 382 of the Internal Revenue Code of 1986. Section 382 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, additional 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. 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 and research and development credit carryforwards that, if not used to reduce our taxable income, will begin to expire in 2021. We have generated or acquired available net operating loss and research and development credit carryforwards of $340,079 and $8,168.

If our goodwill or other intangible assets become 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, 2019, 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). The testing includes comparing the fair value of each reporting unit with its carrying value. We estimate fair value using several valuation methods, including discounted cash flows, market multiples and market capitalization. Impairment adjustments, if any, are required to be recognized as operating expenses. 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.

In Process Research and Development (IPR&D) valued at $126,321 was recorded as an intangible asset in connection with the nContact and SentreHEART acquisitions. If we do not obtain the regulatory approvals that would confirm the technological feasibility of the respective IPR&D projects, or if the IPR&D projects are abandoned for any other reason, we could have an impairment adjustment of this asset that could require us to write off a portion or all of the recorded asset value. Additionally, and similar to goodwill, if the IPR&D asset is deemed to be impaired (as a result of the estimated fair value being less than carrying value), we

would be required to write off the impaired portion of the IPR&D asset. This would materially reduce the value of our assets and reduce our net income or increase our net loss for the year in which the write off 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 to effectively manage accounting and financial functions, 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, any of which could contribute to difficulty in raising additional funds.

We rely upon single and limited source third-party suppliers and third-party logistics 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 Guided Coagulation System with VisiTrax technology 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. We also rely on a third party to handle our warehousing and logistics functions for European and Middle Eastern 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;
- switching components may require product redesign and new submissions to FDA which could significantly delay production or, if FDA refuses to approve the changes, completely eliminate our ability to manufacture or sell our products;
- 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 for any of the components used in our products or a replacement warehousing and logistics provider, if required, may not be accomplished quickly and could involve significant additional costs. Any interruption or delay in the supply of components, materials 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.

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 facility 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 facility, 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 inspectional 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.

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 in the United States 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 DOJ, 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, and believe were not required to be, reported to FDA because we determined that our products 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.

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. 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 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.

We spend considerable time and money complying with federal, state and foreign regulations in addition to FDA regulations, and, if we are unable to 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:

- state consumer protection, fraud and business practice laws, including the California Consumer Privacy Act ("CCPA"), which became effective on January 1, 2020, which among other things, requires new disclosures to California consumers and provides consumers new abilities to opt out of certain sales of personal information;
- 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 of 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 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 with respect to the collection, use, disclosure, transfer, and storage of personal data that we may collect from our employees, consultants or in conjunction with clinical trials such as the General Data Protection Regulation in the European Union;
- 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. For example, if we were found to be in violation of the Federal False Claims Act, we would likely face significant fines and penalties and would likely be required to change substantially our sales, promotion, grant and educational activities. There is also a possibility that we could face an injunction that would prohibit in whole or in part our current business activities, and, as a result of enforcement actions against us or our senior officers, we could be excluded from participation in government healthcare programs such as Medicare and Medicaid. 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 completely 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.

Any clinical data that is generated regarding our products may not be positive or consistent, which would affect the rate at which our products are adopted by the medical community.

Important factors upon which the efficacy of our products will be measured include data on the number of patients that experience Afib or stroke following treatment with our products and the number of patients that have serious complications resulting from ablations or LAA occlusion using our products. While we believe we are now well-positioned to provide sufficient data regarding the safety and efficacy of our products, such data could identify unexpected safety issues. 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 and may not demonstrate that procedures utilizing our products are an attractive option when compared against data from alternative procedures and products. Negative data would affect the use of our products and harm our business and prospects.

Adverse changes in 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 deem the use of our products for indications not specifically approved or cleared by FDA to be experimental and, as such, may deny coverage or payment. Often, these denials can be overcome through an appeals process, but there is no guarantee of success in these cases.

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.

Our revenue generated from sales outside of the United States is also dependent upon the availability of 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.

Fluctuations in foreign currency exchange rates could result in declines in our reported sales and results of operations.

Because some of our international sales are denominated in local currencies and not in U.S. Dollars, our reported sales and earnings are subject to fluctuations in foreign currency exchange rates, primarily the Euro and British Pound. We translate results of transactions denominated in local currencies into U.S. Dollars using market conversion rates applicable to the period in which the transaction is reported. As a result, changes in exchange rates during a period can unpredictably and adversely affect our consolidated operating results and our asset and liability balances, even if the underlying value of the item in its original currency has not changed. At present, we do not hedge our exposure to foreign currency fluctuations. As a result, sales and expenses occurring in the future that are denominated in foreign currencies may be translated into U.S. Dollars at less favorable rates, resulting in reduced revenues and earnings.

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

Our manufacturing operations are primarily conducted at a single location in Ohio, while select products are manufactured in California. While we take precautions at the Ohio location, we do not maintain a backup manufacturing facility, making us dependent on the current facility 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 in any particular case. 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 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 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 our level of international revenue. We intend to continue 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 implementing our marketing plans. 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 third-party distributors to market and sell our products could also be adversely affected by unexpected events, including, but not limited to, power failures, nuclear events, natural or other disasters and war or terrorist activities. In addition, in light of the worldwide economic crisis, the ability of our distributors to borrow money from their existing lenders or to obtain credit from other sources to purchase our products may be impaired or our 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.

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.

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 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 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. 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.

Our business growth strategy involves the potential for significant acquisitions, which involve risks and difficulties in integrating potential acquisitions and 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.

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. Despite our security measures, our information technology and infrastructure may be vulnerable to attacks by hackers or breached due to employee error, malfeasance or other disruptions. Any such breach could compromise our networks and the information stored there could be accessed, publicly disclosed, lost or stolen. Any such access, disclosure or other loss of information could result in legal claims or proceedings, liability under laws that protect the privacy of personal information, regulatory penalties, disrupt our operations and the services we provide to customers, and damage our reputation and cause a loss of confidence in our products and services, which could adversely affect 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 would 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.

We are subject to credit risk from our accounts receivable related to our sales, which include sales to 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.

The United Kingdom's withdrawal from the European Union may have a negative effect on global economic conditions, financial markets and our business.

In June 2016, a majority of voters in the United Kingdom elected to withdraw from the EU, in a national referendum, commonly referred to as Brexit. In March 2017, the United Kingdom formally notified the EU of its intention to withdraw pursuant to Article 50 of the Lisbon Treaty. The United Kingdom left the EU on January 31, 2020, which has initiated an eleven-month transition period by which the United Kingdom is to leave the single market and customs union. The withdrawal has created significant uncertainty about the future relationship between the United Kingdom and the EU, including with respect to the laws and regulations that will apply as the United Kingdom determines which EU laws to replace or replicate to facilitate the withdrawal. From a regulatory perspective, the United Kingdom's withdrawal gives rise to significant complexity and risks. Since the medical device regulatory framework in the United Kingdom is derived from the EU Medical Devices Directive, the United Kingdom's withdrawal could materially impact the continued marketing of EU medical devices in the United Kingdom. Further, the withdrawal may also significantly delay the transport of our products into the United Kingdom, which could adversely impact our sales.

Because of the continued uncertainty about the effects, implementation, or potential repeal of Brexit, we cannot quantify or predict with any certainty the likely impact of Brexit or related legislation on our business model, prospects, financial condition or results of operations. In the absence of a future trade deal, the United Kingdom's trade with the EU and the rest of the world would be subject to tariffs and duties set by the World Trade Organization. Additionally, the movement of goods and personnel between the United Kingdom and the remaining member states of the EU will be subject to additional inspections and documentation checks, leading to possible delays at ports of entry and departure. The withdrawal may result in significant changes to the trading relationship between the United Kingdom and the EU. These changes to the trading relationship between the United Kingdom and EU would likely result in increased cost of goods imported into and exported from the United Kingdom and may decrease the profitability of our operations. Additional currency volatility could drive a weaker British pound, which could increase the cost of goods imported into the United Kingdom and may decrease the profitability of our operations. A weaker British pound versus the U.S. dollar may also cause local currency results of our operations to be translated into fewer U.S. dollars during a reporting period.

Additionally, we may face new regulations regarding trade, aviation, tax, security and employees, among others, in the United Kingdom. Compliance with such regulations could be costly, negatively impacting our business, results of operations and financial condition. Brexit could also adversely affect European and worldwide economic and market conditions and could contribute to instability in global financial markets. With a range of outcomes still possible, the impact from Brexit remains uncertain and will depend, in part, on the final outcome of tariff, trade, regulatory and other negotiations.

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

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

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

- the requirement to exclude from our quarterly worldwide effective income tax calculations losses in jurisdictions where no income tax benefit can be recognized;
- actual and projected full year pre-tax income, including differences between actual and anticipated income before taxes in various jurisdictions;
- changes in tax laws, or in the interpretation or application of tax laws, in various taxing jurisdictions;
- changes in the relative mix and staffing levels in various tax jurisdictions;

- audits or other challenges by taxing authorities; and
- the establishment of valuation allowances against a portion or all of certain deferred income tax assets if we determined that it is more likely than not that future income tax benefits will not be realized.

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

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 pricing laws, including those relating to the flow of funds between the parent and subsidiaries. Tax authorities in the United States and in foreign markets closely monitor our corporate structure and how we account for intercompany fund transfers. If tax authorities challenge our corporate structure, transfer pricing mechanisms or intercompany transfers, 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 utilize all foreign tax credits that are generated, 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. Once these guidelines are formally adopted by the OECD, it is possible that separate taxing jurisdictions 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 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.

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

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

The impact of restrictive trade policies in the United States and the potential corresponding actions by other countries could adversely affect our financial performance.

The U.S. federal government has recently implemented tariffs on certain products imported into the United States from China, and the Chinese government has responded with retaliatory tariffs on certain products, including medical devices, exported from the United States to China. We cannot predict whether the United States will implement additional trade restrictions with respect to China or other countries and how such countries may respond to such trade restrictions. If these tariffs continue or are expanded, they may make it more difficult to sell our products in China or other markets outside of the United States. Restrictive trade policies may also harm the United States and global economies generally, which would adversely affect our business in a variety of ways, including reducing the market for our products, causing a downturn in the trading price of our common stock, and restricting access to credit if we seek it for future growth.

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

We maintain insurance designed to provide coverage for ordinary risks associated with our operations and our ordinary indemnification obligations, which we believe to be customary for our industry. The coverage provided by such insurance may not be adequate for all claims we may make or may be contested by our insurance carriers. If our insurance is not adequate or available to

pay liabilities associated with our operations, or if we are unable to purchase adequate insurance at reasonable rates in the future, our business, financial condition, results of operations or cash flows may be materially adversely impacted.

Shutdowns of the U.S. federal government could materially impair our business and financial condition.

Regulatory approval may be delayed for reasons beyond our control. For example, over the last several years the U.S. government has shut down several times and certain regulatory agencies, such as the FDA, CMS and the SEC, have had to furlough their government employees and stop critical activities. If a prolonged government shutdown or budget sequestration occurs, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business. Further, in our operations as a public company, future government shutdowns could impact our ability to communicate with the SEC on various topics, such as shareholder proposals, or to have our registration statements declared effective, which could affect our ability to access the capital markets quickly.

An epidemic of the coronavirus disease is ongoing in China and other parts of the world and may adversely affect our operations and financial condition.

An epidemic of the coronavirus disease is ongoing in China and other parts of the world. As the outbreak is still evolving, much of its impact remains unknown. It is impossible to predict the effect and potential spread of the coronavirus in China and globally. Should the coronavirus continue to spread or not be contained in China or other parts of the world, our business operations could be delayed or interrupted. China has implemented travel bans to contain the coronavirus, and several countries have expanded screenings of travelers. If bans are implemented and extended to other countries, our business operations could be adversely affected.

Risks Relating To Our Common 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:

- variations in our quarterly financial and operating results;
- physician and patient acceptance of the surgical treatment of Afib or exclusion of the LAA using our products;
- adverse regulatory developments with respect to our products, such as recalls, new regulatory requirements, changes in regulatory requirements or guidance and timing of regulatory clearances and approvals for new products;
- coverage and reimbursement determinations for our products and the related procedures;
- the timing of orders received;
- delays or interruptions in manufacturing or shipping of our products;
- pricing of our products;
- clinical trial results;
- media reports, publications or announcements about products or new innovations that could compete with our products or about the medical device product segment in general;
- investigations, claims or allegations by regulatory agencies, such as the Department of Justice and Financial Industry Regulatory Authority;
- market conditions or trends related to the medical device and healthcare industries or the market in general;
- additions to or departures of our key personnel;
- disputes, litigation or other developments relating to proprietary rights, including patents, and our ability to obtain patent protection for our technologies;
- changes in financial estimates, investors' perceptions or recommendations by securities analysts;
- failure to achieve or maintain an effective healthcare compliance environment;
- changes in accounting principles; and
- failure to achieve and maintain an effective internal control environment.

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.

We may be obligated to issue additional shares of our common stock to the former stockholders of nContact and SentreHEART as a result of our satisfaction of certain milestones set forth in the respective merger agreements, resulting in dilution of our current stock ownership.

Under the terms of each of the nContact and SentreHEART merger agreements, we could issue additional shares of our common stock, or make payments in cash, to the former stockholders of nContact and SentreHEART as contingent consideration upon our satisfaction of milestones described in the merger agreements. The nContact merger agreement limits the total number of shares of AtriCure common stock issued in connection with the acquisition to 5,660, of which 3,757 shares were issued at the closing of the nContact acquisition on October 13, 2015 and 232 shares were issued and delivered to the former shareholders of nContact on September 20, 2018 for satisfaction of the trial enrollment milestone. The SentreHEART merger agreement limits the total number of shares of AtriCure common stock issued in connection with the acquisition to 7,021, of which 699 shares were issued at the closing of the SentreHEART acquisition on August 13, 2019. Issuing additional shares of our common stock in satisfaction of contingent consideration dilutes the ownership interests of holders of our common stock on the dates of such issuances. If we are unable to realize the strategic, operational and financial benefits anticipated from our acquisitions of nContact and SentreHEART, our stockholders may experience dilution of their ownership interests in our company upon any such future issuances of shares of our common stock without receiving any commensurate benefit.

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 pre-arranged 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 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 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.

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 or our business. 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 smaller market capitalizations, 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.

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 projected hiring of sales professionals, continued increase of our market share, and continued 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.

The requirements of being a public company may strain our resources and distract management.

As a public company, we are subject to the reporting requirements of the Securities Exchange Act of 1934, as amended (Exchange Act), and the Sarbanes-Oxley Act of 2002 (Sarbanes-Oxley Act). We are also subject to certain provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act). The Exchange Act requires that we file annual, quarterly and current reports with respect to our business and financial condition. The Dodd-Frank Act requires the SEC to adopt certain rules and regulations relating to our public disclosures, corporate governance and executive compensation, among other things, and such rules and regulations require significant attention from management. Compliance with all of these laws, rules and regulations may from time to time divert management's attention from other business concerns, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

The Sarbanes-Oxley Act requires that we maintain effective disclosure controls and procedures and internal controls over financial reporting and management is required to evaluate the effectiveness of our internal control over financial reporting as of the end of each fiscal year. In order to maintain the effectiveness of our disclosure controls and procedures and internal control over financial reporting, significant resources and management oversight is required. If we are not successful in maintaining effective internal control over financial reporting, there could be inaccuracies or omissions in the consolidated financial information we are required to file with the Securities and Exchange Commission. Additionally, even if there are no inaccuracies or omissions, we will be required to publicly disclose the conclusion of our management that our internal control over financial reporting or disclosure controls and procedures are not effective. These events could cause investors to lose confidence in our reported financial information, adversely impact our stock price, result in increased costs to remediate any deficiencies, or attract regulatory scrutiny or lawsuits that could be costly to resolve and distract management's attention.

The SEC has adopted rules regarding the disclosure of the use of conflict minerals (commonly referred to as tantalum, tin, tungsten and gold) which are mined from the Democratic Republic of the Congo (DRC) and neighboring countries. Under the rules, we are required to disclose the procedures we employ to determine the sourcing of such minerals and metals produced from those minerals. The requirements require due diligence efforts and could affect the sourcing of components used in our products. If the conflict minerals included in our products are found to be sourced from the DRC or surrounding countries, we may take actions to change materials or product designs to reduce the possibility that our purchase of conflict minerals may fund armed groups in the region. These actions could add engineering and other costs to the manufacture of our products. We expect to continue to incur costs in the investigation of the origin of the conflict minerals used in our products and in the reporting of the findings of our investigation.

Our reputation may suffer if we have included conflict minerals in our products that are found to have funded armed groups in the DRC region.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

The Company maintains its headquarters in Mason, Ohio in a leased facility totaling approximately 92,000 square feet. The facility contains the Company's administrative, regulatory, engineering, product development, distribution and manufacturing functions. The Company also leases the following principal locations:

- Mason, Ohio – This location is primarily used for warehousing and distribution activities. The facility is approximately 40,000 square feet.
- Minneapolis, Minnesota – This location includes both administrative and product development space. The office is approximately 27,500 square feet.
- Redwood City, California – This location is primarily used for product development, research and development and manufacturing activities for the LARIAT System and is approximately 19,500 square feet.
- Amsterdam, Netherlands – This location is primarily for the administration of our European subsidiaries and 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

The Company is not party to any material pending or threatened litigation. We may from time to time become a party to additional legal proceedings that arise in the ordinary course of business. See Note 12 – Commitments and Contingencies to our Consolidated Financial Statements.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

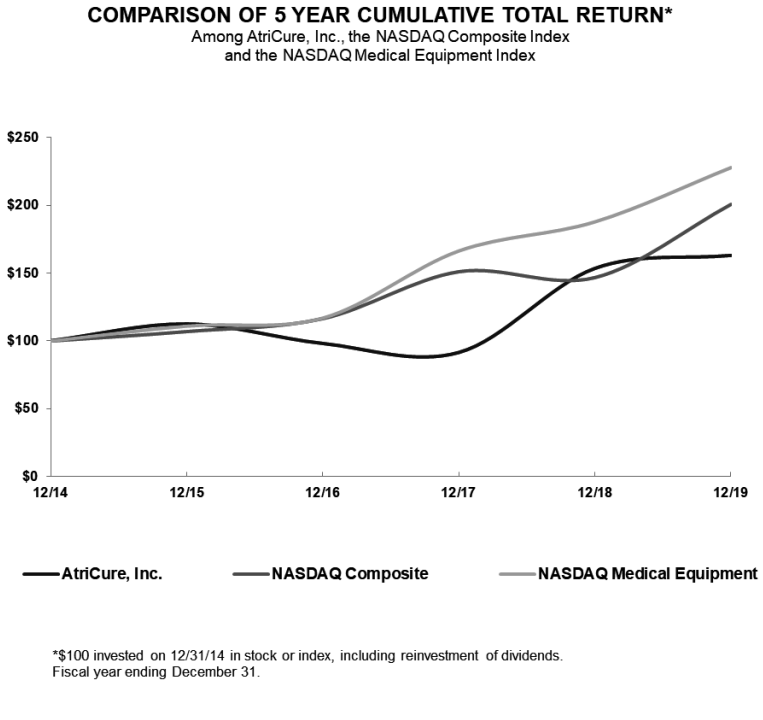
ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Common Stock Market Price

Our common stock is traded on the NASDAQ Global Market under the symbol "ATRC". As of February 20, 2020, the closing price of our common stock on the NASDAQ Global Market was $40.70 per share, and the number of stockholders of record was 91.

Performance Graph

The following graph compares the cumulative total stockholder return on our common stock with the cumulative total return of the NASDAQ Composite and the NASDAQ Medical Equipment Index for the period beginning on January 1, 2015 and ending on December 31, 2019.



This graph assumes that $100.00 was invested on December 31, 2014 in our common stock, the NASDAQ Composite Index and the NASDAQ Medical Equipment 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.

	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019
AtriCure, Inc.	$ 112.42	$ 98.05	$ 91.38	$ 153.31	$ 162.88
NASDAQ Composite	$ 106.96	$ 116.45	$ 150.96	$ 146.67	$ 200.49
NASDAQ Medical Equipment	$ 111.06	$ 116.87	$ 166.41	$ 187.88	$ 227.84

ITEM 6. SELECTED FINANCIAL DATA

The following table reflects selected financial data derived from our Consolidated Financial Statements for each of the last five years. The operating results data for the years ended December 31, 2019, 2018 and 2017 and the financial position data as of December 31, 2019 and 2018 are derived from our audited financial statements included in this Form 10-K. The operating results data for the years ended December 31, 2016 and 2015 and the financial position data as of December 31, 2017, 2016 and 2015 are derived from our audited financial statements not included in this Form 10-K. Historical results are not necessarily indicative of future results. The selected financial data set forth below should be read in conjunction with our financial statements, the related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this Form 10-K.

	Year Ended December 31,				
	2019 (1)	2018 (2)	2017	2016	2015 (3)
	(in thousands, except per share data)				
Operating Results:					
Revenue	$ 230,807	$ 201,630	$ 174,716	$ 155,109	$ 129,755
Gross profit	$ 170,335	$ 147,120	$ 126,163	$ 111,101	$ 92,875
Gross margin	73.8%	73.0%	72.2%	71.6%	71.6%
Net loss	$ (35,194)	$ (21,137)	$ (26,892)	$ (33,338)	$ (27,212)
Basic and diluted net loss per share	$ (0.94)	$ (0.62)	$ (0.83)	$ (1.05)	$ (0.97)
Weighted average shares outstanding	37,589	34,087	32,387	31,609	28,058
Financial Position:					
Cash, cash equivalents and investments	$ 94,476	$ 124,402	$ 34,451	$ 47,009	$ 42,284
Working capital	93,244	134,457	50,355	56,889	43,164
Total assets	557,880	356,759	267,704	276,421	273,092
Long-term debt and leases	74,204	47,743	36,861	37,205	13,710
Stockholders' equity	247,343	249,381	161,166	168,442	186,685

(1) We acquired SentreHEART for $208,847 on August 13, 2019. The acquisition is included in our Consolidated Balance Sheets beginning August 13, 2019, and the results of operations are included in our Consolidated Statements of Operations and Comprehensive Loss beginning with the period August 14, 2019 through December 31, 2019.

We adopted FASB ASC 842, "Leases" using the transition method provided by Accounting Standard Update (ASU) 2018-11, "Leases (Topic 842): Targeted Improvements" on January 1, 2019. Under this method, we applied the new requirements to leases that existed as of January 1, 2019. As a result of the adoption, the Company recorded operating right-of-use assets and operating lease liabilities of approximately $1,884 and $2,189 as of January 1, 2019.

(2) We adopted FASB ASC 606, "Revenue from Contracts with Customers" using the modified retrospective method effective January 1, 2018. The adoption of ASC 606 did not have a material impact on the amount and timing of revenue recognized in the Consolidated Financial Statements.

(3) We acquired nContact for $116,842 on October 13, 2015. The acquisition is included in our Consolidated Balance Sheets beginning October 13, 2015, and the results of operations are included in our Consolidated Statements of Operations and Comprehensive Loss beginning with the period October 14, 2015 through December 31, 2015.

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 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.

Overview

We are a leading innovator in treatments for atrial fibrillation (Afib) and left atrial appendage (LAA) management. Afib affects approximately 1% of the population in the United States. It is the most common cardiac arrhythmia, or irregular heartbeat, encountered in clinical practice and accounts for more doctor visits and hospital days than any other cardiac arrhythmia. 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. 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. Patients often progress from being in Afib intermittently (paroxysmal) to being in Afib continuously (persistent and long standing persistent). Afib often occurs in conjunction with other cardiovascular diseases, including hypertension, congestive heart failure, left ventricular dysfunction, coronary artery disease and valvular disease.

We believe that we are currently the market leader in the surgical treatment of Afib. Our Isolator Synergy System is approved by FDA for the treatment of persistent and long-standing persistent Afib concomitant to other open-heart surgical procedures. All of our other ablation devices are cleared for sale in the United States under FDA 510(k) clearances, including our other RF and cryoablation products, which are indicated for the ablation of cardiac tissue and/or the treatment of cardiac arrhythmias. In addition, certain of our cryoablation probes are cleared for managing pain by temporarily ablating peripheral nerves. Our AtriClip 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 is able to see the heart directly, with or without assistance from a camera, endoscope or other appropriate viewing technologies. The LARIAT® system is cleared for soft tissue ligation and is currently being studied to support an indication of exclusion of the LAA in patients with persistent and long-standing persistent Afib also undergoing a pulmonary vein isolation. We also offer reusable surgical instruments typically used in cardiac valve replacement or repair. Our Isolator Synergy clamps, Isolator Synergy pens, Coolrail® linear pen, cryosurgery devices, certain products of the AtriClip LAA Exclusion System, COBRA Fusion® Ablation System, Numeris™ System, the EPi-Sense® Guided Coagulation System with VisiTrax® technology, and LARIAT Suture Delivery Device 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. Our Isolator Synergy clamps, Isolator Synergy pens, Coolrail linear pen, cryosurgery devices, and certain products of the AtriClip LAA Exclusion System are available in select Asia-Pacific countries. 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 and the Benelux region. We also sell our products to distributors who in turn sell our products to medical centers in other international markets. Our business is primarily transacted in U.S. Dollars with the exception of transactions with our European customers, which are transacted in the Euro or British Pound.

Throughout 2019, we continued to sustain our revenue growth and build on our strategic initiatives of product innovation, investing in clinical science and providing training and education. In August 2019, we acquired SentreHEART with up-front payment of approximately $40,000, plus additional consideration of up to $260,000 contingent on the achievement of clinical and reimbursement milestones. The acquisition of SentreHEART significantly expands our addressable markets with a product designed for electrophysiologists, broadens our LAA management portfolio and augments our commitment to clinical science with the aMAZE trial. Enrollment in the aMAZE trial was completed in December 2019, and in early January 2020, we received approval for the Continued Access Protocol (CAP) for the aMAZE study. In addition to the SentreHEART acquisition in 2019, we continued to focus our efforts on the regulatory submissions for the CONVERGE trial and also received approval in September 2019 for a CAP for CONVERGE.

For the year ended December 31, 2019 we reported annual revenues of $230,807, increasing 14.5% over the prior year, and surpassed 200,000 AtriClip devices sold to date. In February 2019, we launched the cryoICE cryoSPHERE probe in the United States and continued to build a dedicated team to demonstrate our commitment to innovation in Cryo Nerve Block Therapy. Our net loss for fiscal year 2019 was $35,194 as compared to $21,137 for fiscal year 2018, primarily as a result of increased operating expenses related to personnel costs due to increased headcount and variable compensation, incremental investments in clinical trials, product

development and physician training, as well as SentreHEART acquisition expenses, offset partially by improved gross margin. See the "Results of Operations" section below for additional analysis of our 2019 results.

Results of Operations

Year Ended December 31, 2019 compared to December 31, 2018

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,			
	2019		2018	
	Amount	% of Revenue	Amount	% of Revenue
	(dollars in thousands)			
Revenue	$ 230,807	100.0 %	$ 201,630	100.0 %
Cost of revenue	60,472	26.2	54,510	27.0
Gross profit	170,335	73.8	147,120	73.0
Operating expenses:				
Research and development expenses	41,230	17.9	34,723	17.2
Selling, general and administrative expenses	162,227	70.3	129,524	64.2
Total operating expenses	203,457	88.2	164,247	81.5
Loss from operations	(33,122)	(14.4)	(17,127)	(8.5)
Other income (expense):				
Interest expense	(4,111)	(1.8)	(4,607)	(2.3)
Interest income	2,398	1.0	1,006	0.5
Other	(160)	(0.1)	(183)	(0.1)
Other expense	(1,873)	(0.8)	(3,784)	(1.9)
Loss before income tax expense	(34,995)	(15.2)	(20,911)	(10.4)
Income tax expense	199	0.1	226	—
Net loss	$ (35,194)	(15.2) %	$ (21,137)	(10.5) %

Revenue. Total revenue increased 14.5% (15.2% on a constant currency basis). Revenue from customers in the United States increased $23,683, or 14.6%, and revenue from international customers increased $5,494, or 13.9% (17.6% on a constant currency basis). Sales in the United States grew across several key product categories. Open ablation sales increased $7,955, or 11.0% primarily due to the positive impact of the CryoSPHERE device launch and continued volume increases for cardiac ablation devices. Minimally invasive (MIS) ablation sales decreased $211, or 0.6%, reflecting a decline in Fusion product sales, partially offset by increases in legacy RF ablation devices. Appendage management sales increased $15,275, or 28.9%, due to continued growth of the AtriClip Flex·V® LAA Exclusion System, volume increases of the minimally invasive LAA Exclusion system and LARIAT System sales. International growth results from increased volume in AtriClip and open ablation product sales, as well as increasing Epi-sense device sales which partially offset a decline in all other minimally invasive RF ablation products. International revenue grew primarily in China, the United Kingdom, Germany, Australia and Japan.

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 $5,962 and gross margin increased 0.8% to 73.8% in 2019. Improvements in gross margin are reflective of operational improvements and lower production costs at our headquarters. Additionally, there was a $628 decrease in share-based compensation in 2019 primarily due to the acceleration of vesting of restricted stock awards in 2018.

Research and development expenses. Research and development expenses increased $6,507, or 18.7%. The increase in research and development expense is comprised of $2,015 of personnel costs resulting from increased headcount and $1,059 in clinical trial expenses driven by the aMAZE clinical trial enrollment. Other expense drivers include $1,353 higher consulting, product development and regulatory expenses, $687 higher grant and research expenses, $433 increase in amortization expense, $387 higher share-based compensation, and $573 increase in various operating costs.

Selling, general and administrative expenses. Selling, general and administrative expenses increased $32,703, or 25.2%, primarily due to higher personnel expense of $14,902 resulting from increased headcount and variable compensation, $3,978 of acquisition-related expenses, and $1,723 of share-based compensation. Additionally, there was a $5,909 lower reduction related to the

contingent consideration liability as compared to prior year (see Note 3 – Fair Value in the Consolidated Financial Statements). Other expense drivers include a $2,805 rise in operating costs, including organization meetings, facility expenses, and dues and subscriptions, $1,749 increase in marketing, training and tradeshow activities, $758 incremental legal, consulting and professional fees, and $879 increase in software agreements and other information technology expenses.

Net interest expense. Net interest expense was $1,713 for 2019 and $3,601 for 2018. Interest expense is for outstanding amounts associated with our term loan and finance lease obligations, as well as the amortization of financing costs. Interest income reflects returns on our investments, including gains and losses on investments sold during the period. The decrease in net interest expense was driven by $1,392 higher interest income as a result of a higher investment balance throughout 2019 as compared to 2018 and $496 decrease in interest expense reflecting a lower interest rate on the term loan in 2019.

Other income and expense. Other income and expense consists primarily of foreign currency transaction gains and losses.

Year Ended December 31, 2018 compared to December 31, 2017

For a comparison of our results of operations for the fiscal years ended December 31, 2018 and December 31, 2017, see "Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" of our annual report on Form 10-K for the fiscal year ended December 31, 2018, filed with the SEC on March 1, 2019.

Liquidity and Capital Resources

As of December 31, 2019, the Company had cash, cash equivalents and investments of $94,476 and outstanding debt of $60,000. We had unused borrowing capacity of $8,750 under our revolving credit facility. Most of our operating cash and all cash equivalents and investments are held by United States financial institutions. We had net working capital of $93,244 and an accumulated deficit of $282,197 as of December 31, 2019.

Cash flows used in operating activities. Net cash used in operating activities was $15,811 during 2019. The primary net uses of cash for operating activities were as follows:

- the net loss of $35,194, which contains $23,998 of non-cash expenses including
  - $17,977 in share-based compensation,
  - $9,366 of depreciation and amortization,
  - $1,355 of noncash lease expense and loss on disposal and impairment of assets,
  - offset by a decrease in fair value of contingent consideration of $4,916; and
- a net decrease in cash used related to changes in operating assets and liabilities of $4,615, due primarily to the following:
  - a $5,151 increase in all categories of inventories in anticipation of future growth;
  - a $3,201 increase in accounts receivable due primarily to increased sales;
  - a $2,790 increase in accounts payable from increased operating costs; and
  - a $3,108 increase in accrued liabilities reflecting increased accrued variable compensation and employee costs.

Cash flows used in investing activities. Net cash used in investing activities was $2,147 during 2019. The primary uses of cash were $17,240 cash paid in the acquisition of SentreHEART and $12,182 purchases of property and equipment, including the expansion of our corporate headquarters and placement of generators with our customers. These uses of cash were offset by $27,236 of net sales and maturities of available-for-sale securities.

Cash flows provided by financing activities. Net cash provided by financing activities during 2019 was $14,373, which was primarily proceeds from debt borrowings of $20,000, issuance of common stock under our employee stock purchase plan of $2,662, and proceeds from stock option exercises of $1,202. These were partially offset by shares repurchased for payment of taxes on stock awards of $9,033, and finance lease payments of $629.

Credit facility. The Company's Loan and Security Agreement with Silicon Valley Bank (SVB), as amended, August 12, 2019 (Loan Agreement), provides for a $60,000 term loan and a $20,000 revolving line of credit. The term loan and revolving credit facility both mature or expire, as applicable, on August 1, 2024. Principal payments on the term loan are to be made ratably commencing March 1, 2021 through the loan's maturity date. If the Company meets certain conditions, as specified in the Loan Agreement, the commencement of the term loan principal payments may be deferred by an additional six months. The term loan accrues interest at the greater of the Prime Rate or 5.00%, plus 0.75% and is subject to an additional 3.00% fee on the $60,000 term loan principal amount, payable at maturity or upon acceleration or prepayment of the term loan. Borrowing availability under the revolving credit facility is based on the lesser of $20,000 or a borrowing base calculation as defined by the Loan Agreement. Borrowing availability under the

revolving credit facility is further limited by a cap on total debt outstanding under the Loan Agreement, including outstanding letters of credit, of $70,000. As of December 31, 2019, we had no borrowings under the revolving credit facility, and we had borrowing availability of $8,750. The revolving line of credit is subject to an annual facility fee of 0.15% of the revolving line of credit, and any borrowings bear interest at the greater of the Prime Rate or 5.00%. The Loan Agreement also provides for certain prepayment and early termination fees only if the term loan is repaid before August 2024 and establishes a minimum liquidity ratio and dividend restrictions, along with other customary terms and conditions. Specified assets have been pledged as collateral. We are in compliance with the covenants of the Loan Agreement as of December 31, 2019.

In connection with the terms of our corporate headquarters lease agreement, a letter of credit in the amount of $1,250 was issued to the landlord in October 2015. The letter of credit is renewed annually and remains outstanding as of December 31, 2019.

Uses of liquidity and capital resources. Our future capital requirements depend on a number of factors, including the rate of market acceptance of our current and future products; the resources we devote to developing and supporting our products; future expenses to expand and support our sales and marketing efforts; costs relating to changes in regulatory policies or laws that affect our operations and costs of filings; costs associated with clinical trials and securing regulatory approval for new products; costs associated with acquiring and integrating businesses; costs associated with prosecuting, defending and enforcing our intellectual property rights; payments made for acquisition-related earnouts; costs to expand our facilities to support continued growth; and possible future acquisitions and joint ventures. Global economic turmoil may adversely impact our revenue, access to the capital markets or future demand for our products.

We have on file with the SEC a shelf registration statement which allows us to sell any combination of senior or subordinated debt securities, common stock, preferred stock, warrants, depositary shares and units in one or more offerings should we choose to do so in the future. We expect to maintain the effectiveness of this shelf registration statement for the foreseeable future.

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. The nContact transaction provides for contingent consideration to be paid upon attaining specified regulatory approvals before January 2021. The SentreHEART acquisition provides for contingent consideration to be paid upon PMA approval before December 2023 and CPT reimbursement before December 2026. Subject to the terms and conditions of the nContact and SentreHEART merger agreements, such contingent consideration will be paid in AtriCure common stock and cash, up to a specified maximum number of shares. Over the next twelve months, we do not expect our cash requirements to include significant payments of contingent consideration based on terms of the respective acquisition agreements and progress towards achievement of the related milestones. See the heading “Legal” in Note 12 for a description of an earnout objection statement received from the nContact shareholder representative.

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 could 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.

Contractual Obligations and Commitments

The following table sets forth our approximate aggregate obligations at December 31, 2019 for future payments under contracts and other contingent commitments:

Contractual Obligations	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Long-term debt[1]	$ 60,000	$ —	$ 32,195	$ 27,805	$ —
Finance leases[2]	17,937	1,597	3,225	3,316	9,799
Operating leases[3]	4,688	1,465	2,515	708	—
Royalty obligations[4]	2,895	2,895	—	—	—
Restricted grants	726	726	—	—	—
Total contractual obligations	$ 86,246	$ 6,683	$ 37,935	$ 31,829	$ 9,799

(1) Long-term debt represents principal repayments related to our term loan. Principal payments under the term loan commence on March 1, 2021 and are made ratably until maturity in August 1, 2024. Interest on the term loan accrues at the greater of the Prime Rate or 5.00%, plus 0.75% and is payable monthly over the term of the loan. In addition, the term loan is subject to an additional 3.00% fee on the term loan principal, or $1,800, that is payable at maturity or upon acceleration or prepayment of the term loan. Finally, we have a contractual obligation to pay interest on amounts drawn on the revolving credit facility.

(2) Finance leases consist of principal and interest payments related to our Mason, Ohio headquarters and computer equipment. See Note 11 – Leases.

(3) Represents lease commitments under various operating leases, primarily for office and warehouse space. See Note 11 – Leases.

(4) Represents obligations for royalty agreements ranging from 3% to 5% of specified product sales estimated using 2019 sales. Royalty obligations beyond one year have not been included as payments are based on specified product sales and not estimable at this time. See Note 12 – Commitments and Contingencies to our Consolidated Financial Statements.

We have contractual obligations for contingent consideration payments related to the nContact and SentreHEART acquisitions. Subject to the terms and conditions of the nContact and SentreHEART merger agreements, such contingent consideration will be paid in AtriCure common stock and cash, up to a specified maximum number of shares. The nContact contingent consideration expires on December 31, 2020. The SentreHEART milestones expire on December 31, 2023 and December 31, 2026. See Note 3 – Fair Value.

Off-Balance-Sheet Arrangements

We are not a party to any off-balance sheet arrangements that have, or are reasonably likely to have, a current or future material effect on our financial condition, changes in financial condition, sales or expenses, results of operations, liquidity, capital expenditures or capital resources.

Inflation

Inflation has not had a significant impact on our historical operations, and we do not expect it to have a significant impact on our results of operations or financial condition in the foreseeable future.

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. Actual results could differ from those estimates under different assumptions or conditions. 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 affect our more significant judgments and estimates used in the preparation of our consolidated financial statements.

Revenue Recognition— Revenue is generated primarily from the sale of medical devices. The Company recognizes revenue in an amount that reflects the consideration the Company expects to be entitled to in exchange for those devices when control of promised devices is transferred to customers. At contract inception, the Company assesses the products promised in its contracts with customers and identifies a performance obligation for each promise to transfer to the customer a product that is distinct. The Company's devices are distinct and represent performance obligations. These performance obligations are satisfied and revenue is

recognized at a point in time upon shipment or delivery of products. Sales of devices are categorized as follows: open ablation, minimally invasive ablation, appendage management and valve tools. Shipping and handling activities performed after control over products transfers to customers are considered activities to fulfill the promise to transfer the products rather than as separate promises to customers. 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 limited exceptions. The Company does not maintain any post-shipping obligations to customers. No installation, calibration or testing of products is performed by the Company subsequent to shipment in order to render products operational.

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 determination of the timing of transfer of control of products to customers and the estimation of a provision for returns. The Company considers the following indicators when determining when control of the product transfers to customers: (i) the Company has a right to payment in accordance with the shipping terms set forth in its contracts with customers; (ii) customers have legal title to products in accordance with shipping terms; (iii) the Company transfers physical possession of products either when the Company presents the products to a third party carrier for delivery to a customer (FOB shipping point) or when a customer receives the delivered goods (FOB destination); (iv) customers have the significant risks and rewards of ownership of products; and (v) customers have accepted products in connection with contractual shipping terms.

We maintain a provision for sales returns and allowances to account for expected returns of defective or damaged products, products shipped in error and invoice adjustments. We adjust the provision using the expected value method based on historical experience.

Allowance for Doubtful Accounts Receivable—We evaluate the collectability of accounts receivable to determine the appropriate reserve for doubtful accounts. In determining the amount of the reserve, we consider the aging of account balances, customer-specific information and other relevant factors. We review accounts receivable and adjust the allowance based on current circumstances and charge off uncollectible receivables against the allowance when all attempts to collect the receivable have failed. If circumstances change, our estimates of the collectability of amounts could be changed by a material amount. Our history of write-offs against the allowance has not been significant.

Inventories—Our inventories are stated at the lower of cost or net realizable value based on the first-in, first-out cost method and consist of raw materials, work in process and finished goods. Our industry is characterized by rapid product development and frequent new product introductions. We estimate reserves for excess, expired and obsolete inventory on a quarterly basis which are impacted by expiration of products, uncertain timing of product approvals, variability in product launch strategies and variation in product use.

Property and Equipment—We state property and equipment at cost less accumulated depreciation. Depreciation is computed using the straight-line method for financial reporting purposes and applied over the estimated useful lives of the assets. Included in property and equipment are generators and other capital equipment (such as our RF and cryo generators) that are placed with direct customers that use our disposable products. These generators and other capital equipment are depreciated over a period of one to three years, which approximates their useful lives, and such depreciation is included in cost of revenue. We estimate the useful lives of this equipment based on anticipated usage by our customers and the timing and impact of our expected new technology rollouts. To the extent we experience changes in the usage of this equipment or the introductions of new technologies, the estimated useful lives of this equipment may change in a future period.

IPR&D Intangible Asset—In Process Research and Development (IPR&D) represents the value of acquired technology which has not yet reached technological feasibility. The primary basis for determining the technological feasibility is obtaining specific regulatory approvals. IPR&D is accounted for as an indefinite-lived intangible asset until completion or abandonment of the IPR&D project. Upon completion of the development project, the IPR&D will be amortized over its estimated useful life. The IPR&D asset represents an estimate of the fair value of the PMA that may result from the CONVERGE IDE and aMAZE IDE clinical trials. We review intangible assets for impairment annually on October 1, or more often if impairment indicators are present, using our best estimates based on reasonable and supportable assumptions and projections of expected future cash flows. If the IPR&D project is abandoned or regulatory approvals are not obtained, we may have a full or partial impairment charge related to the IPR&D, calculated as the excess carrying value of the IPR&D assets over the estimated fair value.

Goodwill— Goodwill represents the excess of purchase price over the fair value of the net assets acquired in business combinations. Our goodwill is accounted for in a single reporting unit representing the Company as a whole. We test goodwill for impairment annually on October 1, or more often if impairment indicators are present. The impairment test requires a comparison of the estimated fair value of the reporting unit to the carrying value of the assets and liabilities of that reporting unit. If the carrying value of the reporting unit exceeds the fair value of the reporting unit, the carrying value of the reporting unit's goodwill is reduced to its fair value through an impairment charge to adjust the goodwill balance. The estimates of fair value and the determination of reporting units requires management judgment.

***Share-Based Employee Compensation*—**We account for share-based compensation for all share-based payment awards, including stock options, restricted stock awards, restricted stock units, performance share awards, and stock purchases related to an employee stock purchase plan, based on their estimated fair values. We estimate the fair value of time-based options on the date of grant using the Black-Scholes option pricing model (Black-Scholes model). Our determination of fair value of share-based payment awards is affected by our stock price, as well as assumptions regarding a number of subjective variables. These variables include but are not limited to our expected stock price volatility over the term of the awards and actual and projected employee stock option exercise behaviors. The value of the portion of the awards that is ultimately expected to vest is recognized as expense over the requisite service periods in our Consolidated Statements of Operations and Comprehensive Loss.

We estimate the fair value of restricted stock awards, restricted stock units and performance share awards based upon the grant date closing market price of our common stock. The estimated fair value of the performance share awards may be adjusted over the performance period based on estimates of performance target achievement.

We also have an employee stock purchase plan (ESPP) which is available to all eligible employees as defined by the plan document. Under the ESPP, shares of our common stock may be purchased at a discount. We estimate the number of shares to be purchased under the ESPP at the beginning of the purchase period and calculate estimated compensation expense using the Black-Scholes model based upon the fair value of the stock at the beginning of the purchase period. Compensation expense is recognized over each purchase period, and expense is adjusted at the time of stock purchase.

***Acquisition-Related Contingent Consideration*—**Contingent consideration arrangements obligate the Company to pay former shareholders of acquired companies certain amounts if specified future events occur or conditions are met, such as the achievement of certain regulatory milestones or reimbursement milestones. We measure such liabilities using unobservable inputs by applying the probability-weighted scenario method. Various key assumptions, such as the probability and timing of achievement of the agreed milestones and the discount rate, are used in the determination of fair value of contingent consideration arrangements and are not observable in the market. Subsequent revisions to key assumptions, which impact the estimated fair value of contingent consideration liabilities, are reflected in selling, general and administrative expenses.

***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. We measure deferred income tax assets and liabilities 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 us to make 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 some portion of the 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 reversals of existing taxable temporary differences, future taxable income, exclusive of reversing temporary differences and carryforwards and tax planning strategies that are both prudent and feasible. In evaluating whether to record a valuation allowance, the applicable accounting standards deem that the existence of cumulative losses in recent years is a significant piece of objectively verifiable negative evidence that must be overcome by objectively verifiable positive evidence to avoid the need to record a valuation allowance.

We believe our critical accounting policies regarding revenue recognition, allowance for doubtful accounts receivable, inventories, property and equipment, IPR&D intangible asset, goodwill, share-based employee compensation, acquisition-related contingent consideration and income taxes affect our more significant judgments and estimates used in the preparation of our consolidated financial statements. We base our judgments and estimates on historical experience, current conditions and other reasonable factors.

Recent Accounting Pronouncements

See Note 2 – Recent Accounting Pronouncements to our Consolidated Financial Statements for further information.

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. Interest on the term loan and revolving credit facility accrue at a variable rate based on the Prime Rate.

Products sold by AtriCure Europe, B.V. accounted for 11.7% and 12.5% of the Company's total revenue for the years ended December 31, 2019 and 2018. Since such revenue was primarily denominated in Euros or British Pounds, 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 the years ended December 31, 2019 and 2018, foreign currency transaction gains (losses) of $180 and $(183) 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, and if products are priced in Euros, 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 other international markets, the Company denominates sales 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.

The Company invests its cash primarily in money market accounts, repurchase agreements, U.S. government agencies and securities, corporate bonds, asset-backed securities and commercial paper. Although the Company believes its cash to be invested in a conservative manner, with cash preservation being the primary investment objective, the value of the securities held will fluctuate with changes in the 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 with short-term maturities.

Financial instruments that potentially subject the Company to credit risk consist of cash and cash equivalents balances and investments in corporate bonds. Certain of AtriCure's cash and cash equivalents balances 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, 2019, $28,096 of the cash and cash equivalents balance was in excess of FDIC limits.

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.
Mason, Ohio

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of AtriCure, Inc. and subsidiaries (the "Company") as of December 31, 2019 and 2018, the related consolidated statements of operations and comprehensive loss, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2019, and the related notes and the schedule listed in the Index at Item 15 (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, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, 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, 2019, 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 24, 2020, 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 Matters

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

Valuation of Acquisition-Related Contingent Consideration and In Process Research and Development Pursuant to the SentreHEART Merger Agreement - Refer to Note 5 to the financial statements

Critical Audit Matter Description

The Company acquired 100% of the outstanding equity interests of SentreHEART on August 13, 2019 for an aggregate purchase price of $208.8 million. The transaction was accounted for using the acquisition method of accounting for business combinations.

Auditing the Company's accounting for the SentreHEART acquisition was complex due to the estimation uncertainty and key assumptions involved in determining opening balance sheet fair values recorded for the acquisition-related contingent consideration liability of $171.3 million and the in process research and development (IPR&D) intangible asset of $82.3 million.

The Company measured the liability associated with the acquisition-related contingent consideration at fair value, using unobservable inputs by applying the probability-weighted scenario method. Various key assumptions, including the probability and timing of achievement of regulatory or reimbursement milestones ("key assumptions"), were used in the determination of the opening balance sheet fair value of the acquisition-related contingent consideration and are not observable in the market, thus representing Level 3 measurements within the fair value hierarchy.

The Company measured the IPR&D intangible asset at fair value, using the excess earnings method and key cash flow assumptions, such as revenue growth rates, related profit margins and obsolescence rates ("cash flow assumptions").

Given that the valuation of the acquisition-related contingent consideration is based on unobservable inputs and is sensitive to changes in key assumptions, and the IPR&D asset required management to make significant estimates related to key cash flows assumptions, 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 assumptions impacting the fair value calculation of the acquisition-related contingent consideration and IPR&D included the following, among others:

- Related to the valuation of the acquisition-related contingent consideration liability:
    - We inquired of management and the Company's clinical research personnel to understand each milestone and key assumption, including current progress and any clinical results received to date.
    - We tested the design and operating effectiveness of the Company's internal controls over the valuation of the acquisition-related contingent consideration liability, including management's projections of key assumptions used in the valuation.
    - We evaluated management's ability to accurately project the key assumptions by comparing actual progress to management's historical projections.
    - We evaluated the reasonableness of the key assumptions by comparing them to (1) internal communications to management and the Board of Directors and (2) information included in the Company's external communications.
    - We examined regulatory trends to consider the impact of changes in the regulatory environment on the key assumptions.
    - We independently corroborated the reasonableness of the key assumptions by verifying the process and timing necessary to achieve each milestone.

- Related to the valuation of the IPR&D intangible asset:
    - We inquired of management and the Company's commercial personnel to understand the key cash flow assumptions.
    - We tested the design and operating effectiveness of the Company's internal controls over the valuation of the IPR&D intangible asset, including management's controls over estimates used in determining the cash flow assumptions.
    - We evaluated whether the cash flow assumptions used were reasonable by considering industry data and current market forecasts, and whether such assumptions were consistent with evidence obtained in other areas of the audit.
    - We evaluated management's ability to accurately project the key cash flow assumptions by comparing actual progress to management's historical projections.
    - With the assistance of our fair value specialists, we evaluated the reasonableness of the significant valuation assumptions and calculations by:
        - Evaluating the excess earnings method,
        - Testing the reasonableness of the valuation assumptions utilized, including the discount rate, and
        - Testing the mathematical accuracy of the discounted cash flows used to determine the estimated fair value of the IPR&D intangible asset.

Valuation of Acquisition-Related Contingent Consideration — Refer to Note 3 to the financial statements

Critical Audit Matter Description

The Company has acquisition-related contingent consideration arrangements totaling $185.2 million as of December 31, 2019 arising from the nContact and SentreHEART acquisitions which obligate the Company to pay former shareholders of acquired companies certain amounts if specified future events occur or conditions are met, such as the achievement of certain regulatory or reimbursement milestones ("milestones").

The Company measures the liability associated with these acquisition-related contingent consideration arrangements at fair value, using unobservable inputs by applying the probability-weighted scenario method. Various key assumptions, including the probability and timing of achievement of the milestones ("key assumptions"), are used in the determination of fair value of acquisition-related contingent consideration arrangements and are not observable in the market, thus representing Level 3 measurements within the fair value hierarchy.

Given that the valuation of the acquisition-related contingent consideration arrangements is based on unobservable inputs and is sensitive to changes in the probability and timing of achievement of the milestones, auditing these key assumptions required a high degree of auditor judgment and an increased extent of effort.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the Company's key assumptions used in the determination of the fair value of acquisition-related contingent consideration arrangements included the following, among others:

- We inquired of management and the Company's clinical research personnel to understand each milestone and key assumption, including current progress and any clinical results received to date.
- We tested the design and operating effectiveness of the Company's internal controls over management's estimates of key assumptions used in the valuation of the acquisition-related contingent consideration arrangements.
- We evaluated management's ability to accurately project the key assumptions by comparing actual progress to management's historical projections.
- We evaluated the reasonableness of the key assumptions by comparing them to (1) internal communications to management and the Board of Directors and (2) information included in the Company's external communications.
- We examined regulatory trends to consider the impact of changes in the regulatory environment on the key assumptions.
- We independently corroborated the reasonableness of the key assumptions by verifying the process and timing necessary to achieve each milestone.

/s/ Deloitte & Touche LLP

Cincinnati, Ohio
February 24, 2020

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

ATRICURE, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
DECEMBER 31, 2019 and 2018
(In Thousands, Except Per Share Amounts)

	2019	2018
Assets		
Current assets:		
Cash and cash equivalents	$ 28,483	$ 32,231
Short-term investments	53,318	92,171
Accounts receivable, less allowance for doubtful accounts of $1,124 and $547	28,046	25,195
Inventories	29,414	22,484
Prepaid and other current assets	3,899	2,592
Total current assets	143,160	174,673
Property and equipment, net	32,646	27,080
Operating lease right-of-use assets	4,032	—
Long-term investments	12,675	—
Intangible assets, net	129,881	49,254
Goodwill	234,781	105,257
Other noncurrent assets	705	495
Total Assets	$ 557,880	$ 356,759
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 14,948	$ 9,659
Accrued liabilities	32,750	25,840
Other current liabilities and current maturities of debt and leases	2,218	4,717
Total current liabilities	49,916	40,216
Long-term debt	59,634	35,571
Finance lease liabilities	11,774	12,172
Operating lease liabilities	2,796	—
Contingent consideration and other noncurrent liabilities	186,417	19,419
Total Liabilities	310,537	107,378
Commitments and contingencies (Note 12)		
Stockholders' Equity:		
Common stock, $0.001 par value, 90,000 shares authorized; 39,655 and 38,604 issued and outstanding	40	39
Additional paid-in capital	529,658	496,544
Accumulated other comprehensive loss	(158)	(199)
Accumulated deficit	(282,197)	(247,003)
Total Stockholders' Equity	247,343	249,381
Total Liabilities and Stockholders' Equity	$ 557,880	$ 356,759

See accompanying notes to consolidated financial statements.

ATRICURE, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
YEARS ENDED DECEMBER 31, 2019, 2018 and 2017
(In Thousands, Except Per Share Amounts)

	2019	2018	2017
Revenue	$ 230,807	$ 201,630	$ 174,716
Cost of revenue	60,472	54,510	48,553
Gross profit	170,335	147,120	126,163
Operating expenses:			
Research and development expenses	41,230	34,723	34,144
Selling, general and administrative expenses	162,227	129,524	116,998
Total operating expenses	203,457	164,247	151,142
Loss from operations	(33,122)	(17,127)	(24,979)
Other income (expense):			
Interest expense	(4,111)	(4,607)	(2,264)
Interest income	2,398	1,006	227
Other	(160)	(183)	138
Loss before income tax expense	(34,995)	(20,911)	(26,878)
Income tax expense	199	226	14
Net loss	$ (35,194)	$ (21,137)	$ (26,892)
Basic and diluted net loss per share	$ (0.94)	$ (0.62)	$ (0.83)
Weighted average shares outstanding – basic and diluted	37,589	34,087	32,387
Comprehensive loss:			
Unrealized gain (loss) on investments	$ 137	$ (31)	$ 15
Foreign currency translation adjustment	(96)	(202)	487
Other comprehensive income (loss)	41	(233)	502
Net loss	(35,194)	(21,137)	(26,892)
Comprehensive loss, net of tax	$ (35,153)	$ (21,370)	$ (26,390)

See accompanying notes to consolidated financial statements.

ATRICURE, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
YEARS ENDED DECEMBER 31, 2019, 2018, and 2017
(In Thousands)

	Common Stock		Additional Paid-in	Accumulated	Accumulated Other Comprehensive	Total Stockholders'
	Shares	Amount	Capital	Deficit	Income (Loss)	Equity
Balance—December 31, 2016	33,342	$ 33	$ 367,851	$ (198,974)	$ (468)	$ 168,442
Issuance of common stock under equity incentive plans	1,112	2	2,387	—	—	2,389
Issuance of common stock under employee stock purchase plan	132	—	2,110	—	—	2,110
Share-based employee compensation expense	—	—	14,615	—	—	14,615
Other comprehensive income	—	—	—	—	502	502
Net loss	—	—	—	(26,892)	—	(26,892)
Balance—December 31, 2017	34,586	$ 35	$ 386,963	$ (225,866)	$ 34	$ 161,166
Issuance of common stock through public offering	2,875	3	82,870	—	—	82,873
Issuance of common stock for settlement of contingent consideration	232	—	6,279	—	—	6,279
Issuance of common stock under equity incentive plans	781	1	1,554	—	—	1,555
Issuance of common stock under employee stock purchase plan	130	—	2,383	—	—	2,383
Share-based employee compensation expense	—	—	16,495	—	—	16,495
Other comprehensive loss	—	—	—	—	(233)	(233)
Net loss	—	—	—	(21,137)	—	(21,137)
Balance—December 31, 2018	38,604	$ 39	$ 496,544	$ (247,003)	$ (199)	$ 249,381
Issuance of common stock for SentreHEART acquisition	699	1	20,306	—	—	20,307
Issuance of common stock under equity incentive plans	248	—	(7,831)	—	—	(7,831)
Issuance of common stock under employee stock purchase plan	104	—	2,662	—	—	2,662
Share-based employee compensation expense	—	—	17,977	—	—	17,977
Other comprehensive income	—	—	—	—	41	41
Net loss	—	—	—	(35,194)	—	(35,194)
Balance—December 31, 2019	39,655	$ 40	$ 529,658	$ (282,197)	$ (158)	$ 247,343

See accompanying notes to consolidated financial statements.

ATRICURE, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
YEARS ENDED DECEMBER 31, 2019, 2018 and 2017
(In Thousands)

	2019	2018	2017
Cash flows from operating activities:			
Net loss	$ (35,194)	$ (21,137)	$ (26,892)
Adjustments to reconcile net loss to net cash used in operating activities:			
Share-based compensation expense	17,977	16,495	14,615
Depreciation	7,423	7,244	7,761
Amortization of intangible assets	1,943	1,510	1,367
Amortization of deferred financing costs	375	515	264
Non-cash lease expense	751	—	—
Loss on disposal of property and equipment and impairment of assets	604	323	336
Realized loss (gain) from foreign exchange on intercompany transactions	181	165	(173)
(Accretion) amortization of investments	(922)	(362)	30
Provision for doubtful accounts	582	598	(172)
Change in fair value of contingent consideration	(4,916)	(10,825)	(4,078)
Payment of contingent consideration in excess of purchase accounting amount	—	(96)	—
Changes in operating assets and liabilities, net of amounts acquired:			
Accounts receivable	(3,201)	(2,837)	(1,464)
Inventories	(5,151)	(146)	(4,477)
Other current assets	(1,199)	(367)	829
Accounts payable	2,790	(2,398)	1,290
Accrued liabilities	3,108	7,016	2,228
Other noncurrent assets and liabilities	(962)	131	(408)
Net cash used in operating activities	(15,811)	(4,171)	(8,944)
Cash flows from investing activities:			
Purchases of available-for-sale securities	(73,249)	(106,588)	(16,455)
Sales and maturities of available-for-sale securities	100,485	27,389	26,600
Purchases of property and equipment	(12,182)	(6,211)	(6,384)
Proceeds from sale of property and equipment	39	6	—
Cash paid for business combination	(17,240)	—	—
Net cash (used in) provided by investing activities	(2,147)	(85,404)	3,761
Cash flows from financing activities:			
Proceeds from sale of stock, net of offering costs of $229	—	82,873	—
Proceeds from debt borrowings	20,000	17,381	—
Payments on debt and finance leases	(629)	(1,755)	(1,689)
Payment of debt fees	(329)	(1,136)	(50)
Proceeds from stock option exercises	1,202	6,012	4,402
Shares repurchased for payment of taxes on stock awards	(9,033)	(4,457)	(2,013)
Proceeds from issuance of common stock under employee stock purchase plan	2,662	2,383	2,110
Payment of contingent consideration liability previously established in purchase accounting	—	(1,125)	—
Proceeds from economic incentive loan	500	—	—
Net cash provided by financing activities	14,373	100,176	2,760
Effect of exchange rate changes on cash and cash equivalents	(163)	(179)	24
Net (decrease) increase in cash and cash equivalents	(3,748)	10,422	(2,399)
Cash and cash equivalents—beginning of period	32,231	21,809	24,208
Cash and cash equivalents—end of period	$ 28,483	$ 32,231	$ 21,809
Supplemental cash flow information:			
Cash paid for interest	$ 3,719	$ 3,870	$ 2,002
Cash paid for income taxes	259	65	37
Non-cash investing and financing activities:			
Contingent consideration in business combinations	171,300	—	—
Stock issuance in business combinations	20,307	—	—
Share-settled portion of contingent consideration	—	6,279	—
Accrued purchases of property and equipment	1,053	348	650
Assets obtained in exchange for finance lease obligations	270	24	2
Finance lease early termination	—	(6)	—

See accompanying notes to consolidated financial statements.

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 treatments for atrial fibrillation (Afib) and left atrial appendage (LAA) 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 our 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 certain financial institutions.

Investments—The Company makes investments primarily in U.S. Government agencies and securities, corporate bonds, commercial paper and asset-backed securities and classifies all investments as available-for-sale. Investments with maturities of less than one year are classified as short-term. 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 or expense.

Revenue Recognition—The Company recognizes revenue when control of promised goods is transferred to customers in an amount that reflects the consideration the Company expects to be entitled to in exchange for those goods. This generally occurs upon shipment of goods to customers. See Note 13 for further discussion on revenue.

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

Allowance for Doubtful Accounts Receivable—The Company evaluates the collectability of accounts receivable to determine the appropriate reserve for doubtful accounts. In determining the amount of the reserve, the Company considers aging of account balances, customer-specific information and other relevant factors. An increase to the allowance for doubtful accounts 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.

Inventories—Inventories are stated at the lower of cost or net realizable value based on the first-in, first-out cost method 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. Inventory reserves for excess, obsolete and expired products are impacted by uncertain timing of regulatory approvals, variability in product launch strategies and variation in product use. 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 computed using the straight-line method over the estimated useful lives of assets (see Note 8). The Company reassesses the useful lives of property and equipment at least annually and retires assets if they are no longer in service. Maintenance and repair costs are expensed as incurred.

The Company's RF and cryo generators are generally placed with customers served by our direct sales force. The estimated useful lives of this equipment are based on anticipated usage by customers and the timing and impact of expected new technology rollouts by the Company and may change in a future period if the Company experiences changes in the usage of the equipment or introduces new technologies. Depreciation related to generators and other capital equipment is recorded in cost of revenue.

The Company reviews property and equipment for impairment at least annually using its best estimates based on reasonable and supportable assumptions and projections of expected future cash flows. Property and equipment impairments recorded by the Company have not been significant.

Intangible Assets—Intangible assets with determinable useful lives are amortized on a straight-line basis over the estimated periods benefited. The Company reassesses the useful lives of intangible assets annually.

Included in intangible assets is In Process Research and Development (IPR&D), representing the value of acquired technologies which have not yet reached technological feasibility. The primary basis for determining the technological feasibility is obtaining specific regulatory approvals. IPR&D is accounted for as an indefinite-lived intangible asset until completion or abandonment of the IPR&D project. Upon completion of the development project, the IPR&D will be amortized over its estimated useful life. The IPR&D assets represent estimates of the fair value of the pre-market approval (PMA) that may result from the CONVERGE IDE and aMAZE

IDE clinical trials. The Company reviews intangible assets for impairment using its best estimates based on reasonable and supportable assumptions and projections of expected future cash flows. The Company performs impairment testing annually on October 1. If the IPR&D project is abandoned or regulatory approvals are not obtained, we may have a full or partial impairment charge related to the IPR&D, calculated as the excess carrying value of the IPR&D assets over the estimated fair value.

***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 tests goodwill for impairment annually on October 1, or more often if impairment indicators are present.

***Contingent Consideration and other Noncurrent Liabilities*—**This balance consists of the contingent consideration recorded in business combinations, as well as deferred revenues, asset retirement obligations and other contractual obligations. The contingent consideration balance is included in noncurrent liabilities as such settlement is both required and expected to be made primarily in shares of the Company's common stock pursuant to the nContact merger agreement and SentreHEART merger agreement.

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

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 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 the 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. 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 reversals of existing taxable temporary differences, future taxable income, exclusive of reversing temporary differences and carryforwards, 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 to record a valuation allowance. The Company has recorded a full valuation allowance against 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 Tax Cut and Jobs Act (Tax Reform Act) allows companies an election to reclassify the income tax effects of the Tax Reform Act on items within accumulated other comprehensive income (loss) to retained earnings. The Company has not made this election due to its full valuation allowance.

***Net Loss Per Share*—**Basic and diluted net loss per share is computed by dividing the net loss by the weighted average number of common shares outstanding during the period. Since the Company has experienced net losses for all periods presented, net loss per share excludes the effect of 3,623, 3,869 and 4,321 stock options, restricted stock awards, restricted stock units and performance share awards as of December 31, 2019, 2018 and 2017 because they are anti-dilutive. Therefore, the number of shares calculated for basic net loss per share is also used for the diluted net loss per share calculation.

(In Thousands, Except Per Share Amounts)

Comprehensive Income (Loss) and Accumulated Other Comprehensive Income (Loss)—In addition to net losses, the comprehensive loss includes foreign currency translation adjustments and unrealized gains and losses on investments.

Accumulated other comprehensive (loss) income consisted of the following (net of tax):

	2019	2018	2017
Total accumulated other comprehensive (loss) income at beginning of period	$ (199)	$ 34	$ (468)
Unrealized gains (losses) on investments			
Balance at beginning of period	$ (37)	$ (6)	$ (21)
Other comprehensive income (loss) before reclassifications	137	(31)	15
Amounts reclassified from accumulated other comprehensive (loss) income to other income	—	—	—
Balance at end of period	$ 100	$ (37)	$ (6)
Foreign currency translation adjustment			
Balance at beginning of period	$ (162)	$ 40	$ (447)
Other comprehensive (loss) income before reclassifications	(277)	(367)	660
Amounts reclassified from accumulated other comprehensive (loss) income to other income	181	165	(173)
Balance at end of period	$ (258)	$ (162)	$ 40
Total accumulated other comprehensive (loss) income at end of period	$ (158)	$ (199)	$ 34

Research and Development Costs—Research and development costs are expensed as incurred. These costs include compensation and other internal and external costs associated with the development of and research related to new and existing products or concepts, preclinical studies, clinical trials, healthcare compliance and regulatory affairs.

Advertising Costs— The Company expenses advertising costs as incurred. Advertising expense was $635, $785 and $900 during the years ended December 31, 2019, 2018 and 2017.

Share-Based Compensation—The Company records share-based compensation for all share-based payment awards, including stock options, restricted stock, performance shares and stock purchases related to an employee stock purchase plan, based on estimated fair values.

The Company estimates the fair value of share-based payment awards on the date of grant. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service periods in the Company's Consolidated Statements of Operations and Comprehensive Loss. The Company estimates forfeitures at the time of grant and revises them, if necessary, in subsequent periods if 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 fair value is affected by the Company's stock price, as well as assumptions regarding several subjective variables. These variables include, but are not limited to, the Company's expected stock price volatility over the term of the awards and actual and projected employee stock option exercise behaviors. The value of the portion of the awards that is ultimately expected to vest is recognized as expense over the requisite service periods in the Consolidated Statements of Operations and Comprehensive Loss. The Company estimates the fair value of restricted stock awards, restricted stock units and performance share awards based upon the grant date closing market price of the Company's common stock. The estimated fair value of performance share awards may be adjusted over the performance period based on changes to estimates of performance target achievement.

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 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 management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expense during the reporting period. Actual results could differ from those estimates.

Fair Value Disclosures— The Company classifies cash investments in U.S. government agencies and securities, accounts receivable, short-term other assets, accounts payable and accrued liabilities 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 3 – Fair Value for further information on fair value measurements.

2. RECENT ACCOUNTING PRONOUNCEMENTS

In June 2016, the FASB issued ASU 2016-13, "Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments" (ASU 2016-13). This guidance requires that financial assets measured at amortized costs, such as trade receivables and contract assets, be presented net of expected credit losses, which may be estimated based on relevant information such as historical experience, current conditions and future expectations for each pool of similar financial assets. The new guidance requires enhanced disclosures related to the trade receivables and associated credit losses. The guidance is effective for interim and annual periods beginning within 2020. The adoption of this guidance is expected to increase the level of disclosures related to the Company's trade receivables, however it is not expected to have a material impact on the Company's consolidated financial statements.

In January 2017, the FASB issued ASU 2017-04, "Intangibles - Goodwill and Other (Topic 350): Simplifying the Accounting for Goodwill Impairment" (ASU 2017-04). The guidance removes the requirement to perform a hypothetical purchase price allocation to measure goodwill impairment. Under ASU 2017-04, a goodwill impairment will be the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. The guidance becomes effective for interim and annual periods beginning within 2020, with early adoption permitted, and applied prospectively. The Company does not expect the adoption of this standard to have a material impact on its consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13, "Fair Value Measurement (Topic 820), Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement" (ASU 2018-13). The amendments modify the disclosure requirements for fair value measurements and are effective for all entities for interim and annual reporting periods beginning within 2020. Early adoption of either the entire standard or only the provisions that eliminate or modify the requirements is permitted. The Company has elected to early adopt the guidance, and the fair value measurement disclosures herein reflect the adoption of the provisions of ASU 2018-13 as of December 31, 2019.

In August 2018, the FASB issued ASU 2018-15, "Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract" (ASU 2018-15). The amendments in this ASU align the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). The guidance in ASC 350-40 on internal-use software is applied when capitalizing implementation costs related to a hosting arrangement that is a service contract and expense the capitalized implementation costs related to a hosting arrangement that is a service contract over the hosting arrangement's term, presenting the expense in the same line item in the statement of operations and comprehensive loss as that in which the fee associated with the hosting arrangement is presented. The amendments are effective for interim and annual reporting periods beginning within 2020, with early adoption permitted. During 2019, the Company adopted this standard prospectively, and has deferred eligible costs related to implementation of hosting arrangements within other current and noncurrent assets. These costs are amortized in the same income statement line as the associated hosting subscription fees and operating expenses. The adoption of ASU 2018-15 did not have a material impact on the Company's consolidated financial statements.

In December 2019, the FASB issued ASU 2019-12, "Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes" (2019-12). The amendment simplifies the accounting for income taxes by eliminating some exceptions to the general approach in ASC 740, Income Taxes. It also clarifies certain aspects of the existing guidance to promote more consistent application, among other things. The guidance is effective for interim and annual reporting periods beginning within 2021 with early adoption permitted. The Company has elected to early adopt the simplification guidance, and there is no impact on prior periods.

(In Thousands, Except Per Share Amounts)

3. FAIR VALUE

FASB ASC 820, "Fair Value Measurements and Disclosures" (ASC 820), 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.

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, 2019:

	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	$ —	$ 14,502	$ —	$ 14,502
Repurchase agreements	—	10,000	—	10,000
Commercial paper	—	13,755	—	13,755
U.S. government agencies and securities	8,539	—	—	8,539
Corporate bonds	—	24,852	—	24,852
Asset-backed securities	—	18,847	—	18,847
Total assets	$ 8,539	$ 81,956	$ —	$ 90,495
Liabilities:				
Acquisition-related contingent consideration	$ —	$ —	$ 185,157	$ 185,157
Total liabilities	$ —	$ —	$ 185,157	$ 185,157

(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, 2018:

	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	$ —	$ 16,193	$ —	$ 16,193
Commercial paper	—	40,731	—	40,731
U.S. government agencies and securities	6,734	—	—	6,734
Corporate bonds	—	30,195	—	30,195
Asset-backed securities	—	14,511	—	14,511
Total assets	$ 6,734	$ 101,630	$ —	$ 108,364
Liabilities:				
Acquisition-related contingent consideration	—	—	$ 18,773	$ 18,773
Total liabilities	$ —	$ —	$ 18,773	$ 18,773

There were no changes in the levels or methodology of measurement of financial assets and liabilities during the years ended December 31, 2019 and 2018.

Acquisition-Related Contingent Consideration. The Company has contingent consideration arrangements arising from the nContact and SentreHEART acquisitions. Contingent consideration arrangements under the nContact merger agreement obligate the Company to pay former shareholders of nContact for the following milestones, if achieved:

- *Regulatory Milestone* – up to $42,500 upon the completion of the CONVERGE IDE clinical trial and receiving a PMA from FDA for the EPi-Sense AF Guided Coagulation System and/or any other nContact product with an indication for symptomatic persistent Afib or similar or related indication. The full contingent consideration amount of $42,500 is only earned if such regulatory approvals are received on or before January 1, 2020. The potential contingent consideration is reduced by 8.33% (or one-twelfth) each month following January 2020 and is reduced to zero if the regulatory milestone is achieved after December 31, 2020. Any payment of the regulatory milestone contingent consideration is due within 30 days following the receipt of the related PMA approval.
- *Trial Enrollment Milestone* – $7,500 upon completion of patient enrollment in the CONVERGE IDE clinical trial. The Company completed patient enrollment on August 21, 2018, and payment was made to former nContact shareholders on September 20, 2018.
- *Commercial Milestone* – for calendar years 2016 through 2019, nContact revenues in excess of specified target revenue amounts will result in contingent consideration equal to 1.5 times the revenues in excess of target. Payments of contingent consideration when the commercial milestone is achieved are due within 65 days of each calendar year end. No payments were made for calendar years 2016 through 2019 as revenues did not exceed the targets for these years.

Subject to the terms and conditions of the merger agreement, all contingent consideration must be paid first in shares of AtriCure common stock. The merger agreement limits the total number of shares of AtriCure common stock issued in connection with the acquisition to 5,660, of which 3,757 shares were issued at closing of the nContact acquisition on October 13, 2015 and an additional 232 shares were issued upon completion of the trial enrollment milestone in 2018.

Contingent consideration arrangements under the SentreHEART merger agreement 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. In connection with the acquisition of SentreHEART on August 13, 2019, preliminary fair value of $171,300 was recorded for the SentreHEART contingent consideration. See Note 5 for more details regarding the SentreHEART acquisition-related contingent consideration. Subject to the terms and conditions of the SentreHEART merger agreement, all contingent consideration would be paid in cash and stock at the discretion of the Company, subject to certain limitations, with the maximum number of shares that may be issued after closing limited to 7,021, of

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which 699 shares were issued at closing of the SentreHEART acquisition on August 13, 2019. The maximum contingent consideration payable by AtriCure will not exceed $260,000.

The Company measures contingent consideration liabilities using unobservable inputs by applying an income approach, such as the discounted cash flow technique or the probability-weighted scenario method. Various key assumptions, such as the probability and timing of achievement of the agreed milestones and projected revenues, are used in the determination of fair value of contingent consideration arrangements and are not observable in the market, thus representing a Level 3 measurement within the fair value hierarchy.

The recurring Level 3 fair value measurements of the contingent consideration liabilities include the following significant inputs as of December 31, 2019:

	Fair Value	Valuation Technique	Input	Range	Weighted average by relative fair value
			Discount rate	5.56 %	5.56 %
Regulatory & Commercialization-based milestones	$ 185,157	Probability-weighted scenario approach	Projected month and year of payment	June 2020 - September 2025	n/a
			Probability of payment	77.40 - 85.00 %	81.75 %

Contingent consideration liabilities are periodically remeasured. Changes in the discount rate, time until payment and probabilities of payment may result in materially different fair value measurements. A decrease in the discount rate would result in a higher fair value measurement, while a decrease in the probability of payment would result in a lower fair value measurement. Movement in the forecasted timing of achievement to later in the milestone periods also causes a decrease in the fair value measurement. Subsequent revisions in key assumptions, which impact the estimated fair value of contingent consideration liabilities are recorded in selling, general and administrative expenses. The fair value of the nContact contingent consideration was remeasured during 2019, resulting in a decrease in fair value due to actual 2019 revenues falling below the commercial milestone target and changes in estimates related to the forecasted timing of achievement of the nContact regulatory milestone. The fair value of the SentreHEART contingent consideration was remeasured during 2019 resulting in an increase in fair value due to accretion and changes in the discount rate.

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:

	2019	2018	2017
Beginning Balance – January 1	$ 18,773	$ 37,098	$ 41,176
Amounts acquired	171,300	—	—
Settlement of trial enrollment milestone	—	(7,500)	—
Changes in fair value included in selling, general and administrative expenses	(4,916)	(10,825)	(4,078)
Ending Balance – December 31	$ 185,157	$ 18,773	$ 37,098

Contingent consideration liabilities are classified as noncurrent liabilities as the Company expects to settle the majority of the milestone payments in stock. As of December 31, 2019, the Company estimates 15% of the nContact regulatory milestone, or approximately $1,839 will be paid in cash during 2020.

4. INVESTMENTS

Investments as of December 31, 2019 consisted of the following:

	Cost Basis	Unrealized Gains (Losses)	Fair Value
Corporate bonds	$ 24,796	$ 56	$ 24,852
U.S. government agencies and securities	8,529	10	8,539
Commercial paper	13,755	—	13,755
Asset-backed securities	18,813	34	18,847
Total	$ 65,893	$ 100	$ 65,993

(In Thousands, Except Per Share Amounts)

Investments as of December 31, 2018 consisted of the following:

	Cost Basis	Unrealized Gains (Losses)	Fair Value
Corporate bonds	$ 30,223	$ (28)	$ 30,195
U.S. government agencies and securities	6,734	—	6,734
Commercial paper	40,731	—	40,731
Asset-backed securities	14,520	(9)	14,511
Total	$ 92,208	$ (37)	$ 92,171

The Company has not experienced any significant realized gains or losses on its investments in the years ended December 31, 2019, 2018 and 2017.

5. BUSINESS COMBINATIONS

On August 13, 2019, the Company acquired 100% of the outstanding equity interests of SentreHEART. Founded in 2005 and based in Redwood City, California, SentreHEART developed innovative technology for remote delivery of a suture for closure of anatomic structures including the left atrial appendage (LAA). This technology is currently being studied in the aMAZE IDE clinical trial, an FDA-approved, prospective, multicenter, randomized controlled trial. The objective of the aMAZE Trial is to demonstrate that the LARIAT® device for LAA closure, plus a Pulmonary Vein Isolation (PVI) ablation, will lead to a reduced incidence of recurrent Afib compared to PVI alone. Management believes the acquisition of SentreHEART will significantly expand the Company's addressable markets with a product designed for electrophysiologists, and the acquisition of SentreHEART deepens the Company's commitment to provide the broadest possible offering of ablation and LAA management solutions to patients and customers.

The total consideration paid to SentreHEART's former shareholders at the acquisition date was $18,008 in cash and 699 shares of AtriCure common stock valued at approximately $20,307. The cash paid at acquisition was subject to adjustment for net working capital balances outside of a specified range, resulting in $768 adjustment paid to the Company in November 2019. The merger agreement also provides for the Company to pay contingent consideration, as follows:

- *PMA Milestone* – up to $140,000 upon receiving PMA from FDA for the LARIAT system with an approved indication allowing commercial distribution in the United States for the closure of the LAA for treatment of atrial fibrillation. The full contingent consideration amount is only received if PMA approval is received on or before December 31, 2022. The potential contingent consideration is reduced by 4.17% (or one-twenty-fourth) each month following December 2022 and is reduced to zero if the milestone is achieved after December 31, 2023. Payment of $25,000 of the PMA milestone may be accelerated upon achievement of an Interim Success Milestone as defined by the merger agreement.
- *CPT Reimbursement Milestone* – up to $120,000 upon approval of a Medicare Category 1 Current Procedural Terminology (CPT) Code by the American Medical Association. The full contingent consideration amount is only received if approval of the CPT Code is received on or before December 31, 2025. The potential contingent consideration is reduced by 4.17% (or one-twenty-fourth) each month following December 2025 and is reduced to zero if the milestone is achieved after December 31, 2026.

Subject to the terms and conditions of the merger agreement, all contingent consideration would be paid in cash and stock at the discretion of the Company, subject to certain limitations, with the maximum number of shares that may be issued after closing limited to 7,021, of which 699 were paid at closing. The maximum contingent consideration payable by AtriCure will not exceed $260,000.

The Company accounted for the acquisition in accordance with ASC 805, "Accounting for Business Combinations". The assets acquired, liabilities assumed and the estimated contingent consideration obligations are recorded at their respective fair values as of the date of acquisition. The process of estimating fair values of identifiable assets, certain intangible assets and assumed liabilities requires significant assumptions and estimates. The judgments used to determine the estimated fair value assigned to each class of

(In Thousands, Except Per Share Amounts)

assets acquired and liabilities assumed, as well as asset lives, can materially impact the amounts recorded and the Company's results of operations.

The components of the aggregate purchase price for the SentreHEART acquisition are as follows:

Fair value of AtriCure common stock issued at closing	$	20,307
Cash		17,240
Fair value of contingent consideration liabilities		171,300
Total purchase price	$	208,847

The fair value of the contingent consideration liabilities was determined by applying the probability-weighted scenario method. Key assumptions in the valuation of the contingent consideration liabilities are based on management's judgment and estimates and include the probability of achievement of each of the milestones, timing of achievement and discount rates, reflecting the inherent risks of achieving the respective milestones. Some assumptions are not observable in the market, and thus represent a Level 3 measurement within the fair value hierarchy. See Note 3 for disclosure of unobservable inputs.

The following table summarizes the estimated fair values of the assets acquired and the liabilities assumed based on the information that was available as of the acquisition date:

		August 13, 2019
Inventories	$	1,848
Current assets		328
Operating lease right-of-use asset		2,929
Property and equipment		94
Intangible assets		82,570
Other assets		202
Total identifiable assets	$	87,971
Current liabilities	$	5,719
Operating lease liability		2,929
Total liabilities assumed	$	8,648
Net identifiable assets acquired	$	79,323
Goodwill		129,524
Total consideration	$	208,847

During the measurement period, the Company recorded adjustments for the fair value of consideration transferred, including settlement of working capital, and the evaluation of certain tax attributes. As of December 31, 2019, the purchase price allocation has not yet been finalized as the Company evaluates certain tax attributes of SentreHEART. Net deferred tax assets of $20,590 and offsetting valuation allowances were also recognized at the acquisition date for the future tax consequences attributable to differences between the above financial statement carrying amounts of existing assets and liabilities and their respective tax bases and acquired operating loss and tax credit carryforwards of SentreHEART. At acquisition, SentreHEART had approximately $184,036 of federal and state net operating loss carryforwards, which begin to expire in 2026 and $37,906 of federal net operating loss carryforwards which have no expiration as a result of the Tax Reform Act. A portion of the net operating loss carryforwards are subject to certain limitations under Internal Revenue Code Section 382. The Company recorded a full valuation allowance against the net deferred tax assets at acquisition. The goodwill recorded is not deductible for tax purposes.

The valuation of the intangible assets acquired and related amortization periods are as follows:

		Valuation	Amortization Term (in years)
Developed technology	$	270	15
IPR&D		82,300	Indefinite
Total	$	82,570	

The fair value of the LARIAT developed technology was estimated using the relief-from-royalty method, an income approach. The LARIAT developed technology asset is amortized on a straight-line basis over its estimated useful life. The IPR&D asset was estimated using the excess earnings method, also an income approach. The IPR&D asset represents an estimate of the fair value of the

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PMA approval from the in-process aMAZE IDE clinical trial and is accounted for as an indefinite-lived intangible asset until completion or abandonment of the project.

The Company recorded the excess of the aggregate purchase price over the estimated fair values of the identifiable net assets acquired as goodwill. Goodwill is primarily attributable to the benefits the Company expects to realize by enhancing its product offering and addressable markets, thereby contributing to an expanded revenue base. As discussed in Note 1, the Company accounts for goodwill in a single reporting unit representing the Company as a whole.

The operating results of SentreHEART, including $1,280 of appendage management revenue and $8,505 of net loss, are included in the Consolidated Statements of Operations and Comprehensive Loss beginning August 14, 2019. The Consolidated Balance Sheet as of December 31, 2019 reflects the acquisition of SentreHEART. The Company recognized approximately $3,978 of acquisition-related costs in the year ended December 31, 2019, consisting of legal, audit, tax and other due diligence expenses. Acquisition-related costs are included in selling, general and administrative expenses.

The following supplemental pro forma information presents the financial results of the Company for the twelve months ended December 31, 2019 and 2018 as if the acquisition of SentreHEART had occurred on January 1, 2018.

	Year Ended December 31, (unaudited)	
	2019	2018
Revenue	$ 232,768	$ 205,725
Net loss	(40,970)	(42,959)
Basic and diluted net loss per share	$ (1.09)	$ (1.23)

Certain pro forma adjustments have been made when calculating the amounts above to reflect the impact of the purchase transaction, primarily consisting of the exclusion of SentreHEART's interest expense incurred on debt paid off or converted to equity in the acquisition, exclusion of fair value adjustments for SentreHEART's derivative liabilities and preferred warrants settled as part of the acquisition, adjustments for amortization of intangible assets with determinable lives and exclusion of contingent consideration remeasurement. The Company also eliminated transaction expenses incurred by both AtriCure and SentreHEART. The supplemental pro forma information has been prepared for comparative purposes and does not purport to be indicative of what would have occurred had the acquisition been made on January 1, 2018, nor is it indicative of any future results. The pro forma information does not include any adjustments for potential revenue enhancements, cost synergies or other operating efficiencies that could result from the acquisition.

6. INTANGIBLE ASSETS AND GOODWILL

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

		2019		2018	
	Estimated Useful Life	Cost	Accumulated Amortization	Cost	Accumulated Amortization
Technology	3-15 years	$ 11,691	$ 8,131	$ 12,250	$ 7,017
IPR&D		126,321	—	44,021	—
Total		$ 138,012	$ 8,131	$ 56,271	$ 7,017

Amortization expense related to intangible assets with definite lives, which excludes the IPR&D asset, was $1,943, $1,510 and $1,367 for the years ended December 31, 2019, 2018 and 2017. In 2018, the Company reduced the ten-year estimated useful life of the Fusion technology asset by two years based on changes in estimated periods benefited. This change in estimate was applied prospectively.

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Future amortization expense is projected as follows:

2020	$ 1,822
2021	1,511
2022	18
2023	18
2024	18
2025 and thereafter	173
Total	$ 3,560

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, 2017	$ 105,257
Additions	—
Net carrying amount as of December 31, 2018	105,257
Additions	129,524
Net carrying amount as of December 31, 2019	$ 234,781

7. INVENTORIES

Inventories consisted of the following at December 31:

	2019	2018
Raw materials	$ 11,126	$ 9,100
Work in process	1,260	1,232
Finished goods	17,028	12,152
Inventories	$ 29,414	$ 22,484

8. PROPERTY AND EQUIPMENT

Property and equipment consisted of the following at December 31:

	Estimated Useful Life	2019	2018
Generators and other capital equipment	1-3 years	$ 20,167	$ 18,158
Building under finance lease	15 years	14,250	14,250
Computer and other office equipment	3 years	7,606	6,360
Machinery, equipment and vehicles	3-7 years	5,905	4,859
Furniture and fixtures	3-7 years	5,009	4,702
Leasehold improvements	5-15 years	6,078	3,943
Construction in progress	N/A	5,708	1,868
Land	N/A	502	—
Equipment under finance leases	3-5 years	483	213
Total		65,708	54,353
Less accumulated depreciation		(33,062)	(27,273)
Property and equipment, net		$ 32,646	$ 27,080

Property and equipment depreciation expense was $7,423, $7,244 and $7,761 for the years ended December 31, 2019, 2018 and 2017. Depreciation related to generators and other capital equipment was $2,910, $3,191 and $3,574 for the years ended 2019, 2018 and 2017. As of December 31, 2019 and 2018, the net carrying value of generators and other capital equipment was $4,272 and $4,545.

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9. ACCRUED LIABILITIES

Accrued liabilities consisted of the following at December 31:

	2019	2018
Accrued bonus	$ 10,840	$ 9,100
Accrued commissions	8,734	8,065
Accrued payroll and employee-related expenses	6,748	4,512
Sales returns and allowances	3,979	1,410
Other accrued liabilities	59	1,205
Accrued taxes and value-added taxes payable	1,658	886
Accrued royalties	732	662
Total	$ 32,750	$ 25,840

10. INDEBTEDNESS

Credit Facility. The Company has a Loan and Security Agreement (Loan Agreement) with Silicon Valley Bank (SVB). The Loan Agreement originally effective February 23, 2018 and modified December 28, 2018 was further modified and amended on August 12, 2019 in connection with the SentreHEART acquisition. The Loan Agreement includes a $60,000 term loan and $20,000 revolving line of credit; however the total combined term loan and revolving line of credit outstanding under the Loan Agreement cannot exceed $70,000 at any time prior to SVB's consent. The term loan and revolving credit facility both mature or expire, as applicable, on August 1, 2024.

Principal payments of the term loan are to be made ratably commencing March 1, 2021 through the loan's maturity date. If the Company meets certain conditions, as specified by the Loan Agreement, the commencement of term loan principal payments may be deferred by an additional six months. The term loan accrues interest at the greater of the Prime Rate or 5.00%, plus 0.75% and is subject to an additional 3.00% fee on the $60,000 term loan principal payable at maturity or upon acceleration or prepayment of the term loan. The Company is accruing the 3.00% fee over the term of the Loan Agreement, with $135 accrued in the outstanding loan balance as of December 31, 2019. Additionally, the original financing costs related to the term loan of $501 are netted against the outstanding loan balance in the Consolidated Balance Sheets and amortized ratably over the term of the Loan Agreement. The August 2019 refinancing was treated as a debt modification.

The revolving line of credit is subject to an annual facility fee of 0.15% of the revolving line of credit, and any borrowings thereunder bear interest at the greater of the Prime Rate or 5.00%. Borrowing availability under the revolving credit facility is based on the lesser of $20,000 or a borrowing base calculation as defined by the Loan Agreement. The borrowing availability is also limited to allow total debt outstanding under the Loan Agreement to not exceed $70,000 at any time prior to SVB's consent and further reduced by outstanding letters of credit (as specified). As of December 31, 2019, the Company had no borrowings under the revolving credit facility and had borrowing availability of $8,750. 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.

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 principal payments of long-term debt are projected as follows:

2020	$ —
2021	14,634
2022	17,561
2023	17,561
2024	10,244
Total long-term debt, of which $60,000 is noncurrent	$ 60,000

11. LEASES

The Company adopted the new lease guidance on January 1, 2019 using the transition method provided by ASU 2018-11, "Leases (Topic 842): Targeted Improvements". Under this method, the Company has applied the new requirements to leases that existed as of January 1, 2019, rather than at the earliest comparative period presented in the financial statements. Prior periods are presented under legacy ASC 840 lease guidance. As a result of the adoption, the Company recorded operating right-of-use assets and

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operating lease liabilities of approximately $1,884 and $2,189 as of January 1, 2019. The difference between the initial operating right-of-use asset and operating lease liability of $305 is accrued rent previously recognized under ASC 840.

The Company has operating and finance leases for corporate offices, manufacturing and warehouse facilities and computer equipment. The Company has applied the practical expedient and does not separate lease components from nonlease components. The Company has applied the short-term lease recognition exemption and recognizes lease payments in profit or loss for leases that have a lease term of twelve months or less at commencement and do not include a renewal option whose exercise is reasonably certain. Short term lease expense is not significant during the twelve months ended December 31, 2019.

The Company's leases have remaining lease terms of one year to eleven years. Except for the operating lease acquired as part of the SentreHEART acquisition, options to renew or extend leases beyond their initial term have been excluded from measurement of the ROU assets and lease liabilities as exercise is not reasonably certain. The weighted average remaining lease term for operating leases and finance leases is 3.5 years and 11.0 years as of December 31, 2019. The weighted average discount rate used to measure the outstanding operating lease liabilities and finance lease liabilities is 5.9% and 7.0% as of December 31, 2019. In connection with the terms of the Company's corporate headquarters lease, a letter of credit for $1,250 was issued to the building lessor in October 2015. The letter of credit is renewed annually and remains outstanding as of December 31, 2019.

The components of lease expense are as follows:

	Twelve Months Ended December 31, 2019
Operating lease cost	$ 952
Finance lease cost:	
Amortization of right-of-use assets	998
Interest on lease liabilities	872
Total finance lease cost	$ 1,870

Supplemental cash flow information related to leases is as follows:

	Twelve Months Ended December 31, 2019
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	$ 1,026
Operating cash flows from finance leases	872
Financing cash flows from finance leases	629
Right-of-use assets obtained in exchange for lease obligations:	
Operating Leases	1,884
Finance Leases	270
Operating lease right-of-use asset obtained in business combination	2,929

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Supplemental balance sheet information related to leases is as follows:

	December 31, 2019
Operating Leases	
Operating lease right-of-use assets	$ 4,032
Other current liabilities and current maturities of leases and long-term debt	(1,465)
Operating lease liabilities	(2,796)
Total operating lease liabilities	$ (4,261)
Finance Leases	
Property and equipment, at cost	$ 14,733
Accumulated depreciation	(4,197)
Property and equipment, net	$ 10,536
Other current liabilities and current maturities of leases and long-term debt	$ (753)
Finance lease liabilities	(11,774)
Total finance lease liabilities	$ (12,527)

Maturities of lease liabilities as of December 31, 2019 are as follows:

	Operating Leases	Finance Leases
2020	$ 1,465	$ 1,597
2021	1,337	1,602
2022	1,178	1,623
2023	708	1,646
2024	—	1,670
2025 and thereafter	—	9,799
Total payments	$ 4,688	$ 17,937
Less imputed interest	(427)	(5,410)
Total	$ 4,261	$ 12,527

12. COMMITMENTS AND CONTINGENCIES

Royalty Agreements. The Company has royalty agreements in place with terms that include payment of royalties of 3% to 5% of specified product sales. One royalty agreement remains in effect through 2023, while the other agreement remains in effect the later of 2025 or until expiration of the underlying patents or patent applications. Parties to the royalty agreements have the right at any time to terminate the agreement immediately for cause. Royalty expense of $2,892, $2,715 and $2,323 was recorded as part of cost of revenue for the years ended December 31, 2019, 2018 and 2017.

Purchase Agreements. The Company enters into standard purchase agreements with certain vendors 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. When management has assessed that a loss is probable and an amount can be reasonably estimated, the Company records a liability in the Consolidated Financial Statements.

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 requires 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 and is cooperating with its investigation. However, the Company cannot predict when the investigation will be resolved, the outcome of the investigation or its potential impact on the Company.

The Company acquired nContact Surgical, Inc. pursuant to a merger agreement dated October 4, 2015. The merger agreement provides for contingent consideration or "earnout" to be paid upon attaining specified regulatory approvals and clinical and revenue milestones. The merger agreement's earnout provisions require the Company to deliver periodic earnout reports to a designated representative of former nContact stockholders. In response to the reports delivered in and after February 2018, the Company received letters from the representative purporting to serve as "earnout objection statements" (as that term is defined in the merger agreement) and claim that for purposes of determining the commercial milestone payment, the Company should be including revenues of certain products that the Company has not included in its earnout statements. The representative is seeking indemnification under the merger agreement related to its claims. The Company has engaged with the representative regarding the earnout objection statements and disputes the basis of the representative's claims.

13. REVENUE

The Company adopted FASB ASC 606, "Revenue from Contracts with Customers" (ASC 606) using the modified retrospective method effective January 1, 2018. The adoption of ASC 606 did not have a material impact on the amount and timing of revenue recognized in the Consolidated Financial Statements.

Revenue is generated primarily from the sale of medical devices. The Company recognizes revenue in an amount that reflects the consideration the Company expects to be entitled to in exchange for those devices when control of promised devices is transferred to customers. At contract inception, the Company assesses the products promised in its contracts with customers and identifies a performance obligation for each promise to transfer to the customer a product that is distinct. The Company's devices are distinct and represent performance obligations. These performance obligations are satisfied and revenue is recognized at a point in time upon shipment or delivery of products. Sales of devices are categorized as follows: open ablation, minimally invasive ablation, appendage management and valve tools. Shipping and handling activities performed after control over products transfers to customers are considered activities to fulfill the promise to transfer the products rather than as separate promises to customers. Revenue includes shipping and handling revenue of $1,485, $1,236 and $1,090 in 2019, 2018 and 2017.

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 limited exceptions. The Company does not maintain any post-shipping obligations to customers. No installation, calibration or testing of products is performed by the Company subsequent to shipment in order to render products operational.

Significant judgments and estimates involved in the Company's recognition of revenue include the determination of the timing of transfer of control of products to customers and the estimation of a provision for returns. The Company considers the following indicators when determining when the control of products transfers to customers: (i) the Company has a right to payment in accordance with the shipping terms set forth in its contracts with customers; (ii) customers have legal title to products in accordance with shipping terms; (iii) the Company transfers physical possession of products either when the Company presents the products to a third party carrier for delivery to a customer (FOB shipping point) or when a customer receives the delivered goods (FOB destination); (iv) customers have the significant risks and rewards of ownership of products; and (v) customers have accepted products in connection with contractual shipping terms.

In the normal course of business, the Company does not accept product returns unless a product is defective as manufactured. The Company establishes estimated provisions for returns based on the expected value method considering historical experience. The Company does not provide customers with the right to a refund. In connection with the acquisition of SentreHEART, the Company recognized an allowance for sales returns and refunds of $2,240 for transition to ASC 606 to reflect SentreHEART's historical refund practices.

The Company expects to be entitled to the total consideration for the products ordered by customers as product pricing is fixed according to the terms of customer contracts and payment terms are short. Payment terms fall within the one-year guidance for the practical expedient which allows the Company to forgo adjustment of the promised amount of consideration 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 commissions and royalties. Considering that product sales are performance obligations in contracts that are satisfied at a point in time, commission expense associated with product sales and royalties paid based on sales of certain products is incurred at that point in time rather than over time. Therefore, the Company applies the practical expedient and recognizes commissions and royalties as expense when incurred because the expense is incurred at a point in time and the amortization period is less than one year. Commissions are recorded as selling expense and royalties are recorded as cost of revenue.

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See Note 18 for disaggregated revenue by geographic area and by product category.

14. INCOME TAXES

The Company files federal, state, local and foreign income tax returns in jurisdictions with varying statutes of limitations. Income taxes are computed using 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 has recorded a full valuation allowance against substantially all 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.

On December 22, 2017, H.R.1, "An Act to Provide for Reconciliation Pursuant to Titles II and V of the Concurrent Resolution on the Budget for Fiscal Year 2018" (the Tax Reform Act) was enacted and amends the Internal Revenue Code to reduce tax rates and modify policies, credits and deductions for businesses. For businesses, U.S. GAAP requires resulting tax effects of accounting for the Tax Reform Act to be recorded in the reporting period of enactment. On December 22, 2017, the SEC staff also issued Staff Accounting Bulletin No. 118 (SAB 118) which allowed businesses to record provisional amounts in the application of U.S. GAAP during a measurement period, not to extend beyond one year from the enactment of the Tax Reform Act, in situations when a registrant did not have the necessary information available, prepared, or analyzed in reasonable detail to complete the accounting for certain income tax effects of the Tax Reform Act. As of December 31, 2018, the Company completed our accounting for the tax effects of enactment of the Tax Reform Act. The Tax Reform Act provided companies with the ability to elect to reclassify the income tax effects of the Tax Cuts and Jobs Act on items within accumulated other comprehensive income (loss) to retained earnings. The Company did not make this election due to its full valuation allowance.

The Company's provision for income taxes for each of the years ended December 31 is as follows:

	2019	2018	2017
Current Tax Expense			
Federal	$ (26)	$ (51)	$ —
State	34	28	44
Foreign	165	198	72
Total current tax expense	173	175	116
Deferred Tax Expense			
Federal	$ (7,655)	$ (3,048)	$ 18,485
State	(1,368)	178	(1,337)
Foreign	(1,690)	45	(2,241)
Change in valuation allowance	10,739	2,876	(15,009)
Total deferred tax expense	26	51	(102)
Total tax expense	$ 199	$ 226	$ 14

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

	2019	2018
Deferred tax assets (liabilities):		
Net operating loss carryforward	$ 111,000	$ 68,563
Research and development and AMT credit carryforwards, net	8,193	6,206
Deferred interest	909	774
Equity compensation	8,233	4,750
Accruals and reserves	3,513	802
Inventories	1,007	726
Intangible assets	(30,996)	(11,448)
Property and equipment, net	(1,482)	(608)
Finance and operating lease liabilities	4,016	—
Right-of-use assets	(3,476)	—
Other, net	287	135
Subtotal	101,204	69,900
Less valuation allowance	(101,178)	(69,849)
Total	$ 26	$ 51

The Company recorded $20,590 of net deferred tax assets and offsetting valuation allowances as part of the SentreHEART acquisition.

The Company has federal net operating loss carryforwards of $340,079 which have expirations between 2021 and 2038 and $80,101 which has no expiration as a result of the Tax Reform Act. The Company has state and local net operating loss carryforwards of $260,924 with varying expirations from 2020 to 2040. 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 $8,168 which have expirations between 2023 and 2040. Additionally, the Company has foreign net operating loss carryforwards of approximately $42,712 which have expirations between 2020 and 2028. On January 1, 2017, the Company adopted ASU 2016-09, "Improvements to Employee Share-Based Payment Accounting" and recognized $2,816 of previously unrecognized deferred tax assets with a corresponding increase in its valuation allowance. On January 1, 2019 the Company adopted ASC 842 and recognized $400 of operating lease liability deferred tax assets and $400 of offsetting right-of-use asset deferred tax liabilities.

The Company's 2019, 2018 and 2017 effective income tax rates differ from the federal statutory rate as follows:

	2019		2018		2017	
Federal tax at statutory rate	21.00 %	$ (6,950)	21.00 %	$ (4,391)	34.00 %	$ (9,139)
Federal and Foreign tax rate change	1.40	(462)	(6.84)	1,430	(109.68)	29,480
Federal R&D credit	2.53	(837)	4.39	(918)	(0.40)	107
Federal deferred adjustment	3.28	(1,085)	(10.77)	2,253	—	—
Federal NOL adjustment for ASU	—	—	—	—	10.48	(2,816)
Valuation allowance	(32.45)	10,739	(13.75)	2,876	55.84	(15,009)
State income taxes	4.02	(1,334)	(0.99)	206	4.81	(1,292)
Foreign NOL rate change	(1.17)	388	(1.22)	256	1.30	(348)
Foreign tax rate differential	(0.38)	126	(0.60)	125	(2.45)	658
Permanent differences and other	1.17	(386)	7.70	(1,611)	6.05	(1,627)
Effective tax rate	(0.60) %	$ 199	(1.08) %	$ 226	(0.05) %	$ 14

The Company's pre-tax book loss for domestic and international operations was $(28,002) and $(6,993) for 2019, $(13,443) and $(7,468) for 2018 and $(19,409) and $(7,469) for 2017.

The Company had undistributed earnings of foreign subsidiaries of approximately $304 at December 31, 2019. The Company does not consider these earnings as permanently reinvested and thus has recognized appropriate U.S. current and deferred taxes 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 2016 are open for examination. Generally, state and foreign income tax returns for periods beginning in 2015 are open for examination. However, taxing authorities have the ability to adjust net operating loss and tax credit

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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 2019, 2018 and 2017 is presented below:

	2019	2018	2017
Balance at the beginning of the year	$ 1,157	$ 1,157	$ 3,175
Increases (decreases) for prior year tax positions	620	—	(2,018)
Increases (decreases) for current year tax positions	—	—	—
Increases (decreases) related to settlements	—	—	—
Decreases related to statute lapse	—	—	—
Balance at the end of the year	$ 1,777	$ 1,157	$ 1,157

The Internal Revenue Service completed its review of the Company's 2014 federal income tax return in February 2017. In 2017, the Company also completed a detailed analysis of R&D credit carryforwards for the tax years 2008 through 2016. As a result of this analysis, as well as completion of the IRS audit of the 2014 credit, the Company has reduced both the R&D credit carryforward and related unrecognized tax benefits by $2,018. The Company's increase for prior year tax positions relates to uncertain income tax benefits assumed pursuant to the SentreHEART acquisition. Historically, the Company did not have any interest and penalties accrued for unrecognized income tax benefits as a result of offsetting net operating losses. The Company has accrued interest and penalties associated with uncertain income tax benefits assumed pursuant to the SentreHEART acquisition as of December 31, 2019, and recognized interest and penalties within income tax expense. The amount is not significant.

There are no amounts included in the balance of unrecognized tax benefits at December 31, 2018 and 2017 that, if recognized, would affect the effective tax rate. The balance of unrecognized tax benefits at December 31, 2019 includes $1,777 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, 2019.

15. CONCENTRATIONS

During 2019, 2018 and 2017, approximately 12.0%, 10.8% and 13.2% of the Company's total net revenue was derived from its top ten customers. During 2019, 2018 and 2017 no individual customer accounted for more than 10% of the Company's revenue.

As of December 31, 2019 and 2018, 16.5% and 11.8% 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, 2019 and 2018.

The Company maintains cash and cash equivalents balances at financial institutions which at times exceed FDIC limits. As of December 31, 2019, $28,096 of the cash and cash equivalents balance was in excess of the FDIC limits.

16. 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 2019, 2018 and 2017 the Company made matching contributions of 50% on the first 6% of employee contributions to the 401(k) Plan. The Company's matching contributions expensed during 2019, 2018 and 2017 were $1,915, $1,560 and $1,367. 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 during 2019, 2018 or 2017. The Company also provides retirement benefits for employees of AtriCure Europe B.V. and other foreign subsidiaries. Total contributions to retirement plans for these employees were $248, $243 and $205 in 2019, 2018 and 2017.

17. 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 incentive stock options to Company employees and 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. The administrator (the Compensation Committee of the Board

(In Thousands, Except Per Share Amounts)

of Directors) 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, 2019, 11,999 shares of common stock had been reserved for issuance under the 2014 Plan and 1,578 shares were available for future grants.

During 2019 and 2018, the Compensation Committee approved the grant of performance share awards to the Company's named executive officers and certain other executive employees pursuant to the Company's 2014 Plan. The form of award agreement for the PSAs (PSA Grant Form) provides, among other things, that (i) each PSA that vests represents the right to receive one share of the Company's common stock; (ii) the PSAs vest based on the Company achieving specified performance measurements over a performance period of three years; (iii) the performance measurements include revenue CAGR as defined in the PSA Grant Form; (iv) threshold, target and maximum payout opportunities established for the PSAs will be used to calculate the number of shares that will be issuable when the award vests, which may range from 0% to 200% of the target amount; (v) any PSAs that are earned are scheduled to vest and be settled in shares of the Company's common stock at the end of the performance period; and (vi) 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 (each as described in greater detail in the PSA Grant Form).

With respect to the PSAs, the number of shares that vest and are issued to the recipient is based upon the Company's performance as measured against the specified targets at the end of the three-year performance period as determined by the Compensation Committee. The Company estimated the fair value of the PSAs based on its closing stock price on the grant date and will adjust compensation expense over the performance period based on its estimate of performance target achievement.

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 granted prior to 2018 under the 2014 Plan generally vest at a rate of 25% on the first anniversary date of the grant and ratably each month thereafter over the following three years. Restricted stock awards granted prior to 2018 generally vest between one year and four years from the date of grant. Stock options generally expire ten years from the date of grant.

Activity under the plans during 2019 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, 2019	1,582	$ 13.83		
Granted	42	28.77		
Exercised	(110)	10.91		
Cancelled	(7)	30.48		
Outstanding at December 31, 2019	1,507	$ 14.38	4.25	$ 27,340
Vested and expected to vest	1,503	$ 14.35	4.24	$ 27,319
Exercisable at December 31, 2019	1,392	$ 13.55	3.90	$ 26,398

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, 2019	1,746	$ 18.19	90	$ 17.71
Awarded	435	30.12	174	30.77
Released	(776)	18.44	—	—
Forfeited	(3)	18.02	—	—
Outstanding at December 31, 2019	1,402	$ 21.76	264	$ 26.34

(In Thousands, Except Per Share Amounts)

Performance Stock Options	Number of Shares Outstanding	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
Outstanding at January 1, 2019	450	$ 13.48		
Granted	—	—		
Exercised	—	—		
Cancelled	—	—		
Outstanding at December 31, 2019	450	$ 13.48	3.45	$ 8,566
Exercisable at December 31, 2019	350	$ 13.48	3.45	$ 6,662

Activity under the plans during 2018 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, 2018	2,026	$ 13.30		
Granted	52	26.05		
Exercised	(474)	12.70		
Cancelled	(22)	18.14		
Outstanding at December 31, 2018	1,582	$ 13.83	5.02	$ 26,587
Vested and expected to vest	1,574	$ 13.78	5.00	$ 26,525
Exercisable at December 31, 2018	1,419	$ 12.99	4.63	$ 24,991

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, 2018	1,845	$ 18.22	—	$ —
Awarded	630	18.71	90	17.71
Released	(638)	18.87	—	—
Forfeited	(91)	17.97	—	—
Outstanding at December 31, 2018	1,746	$ 18.19	90	$ 17.71

Performance Stock Options	Number of Shares Outstanding	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
Outstanding at January 1, 2018	450	$ 13.48		
Granted	—	—		
Exercised	—	—		
Cancelled	—	—		
Outstanding at December 31, 2018	450	$ 13.48	4.45	$ 5,555
Exercisable at December 31, 2018	350	$ 13.48	4.45	$ 4,321

The total intrinsic value of options exercised during the years ended December 31, 2019, 2018 and 2017 was $1,985, $5,343 and $5,121. 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 2019, 2018 and 2017, $1,202, $6,012 and $4,402 in cash proceeds were included in the Company's Consolidated Statements of Cash Flows as a result of the exercise of stock options. The total fair value of restricted stock vested during 2019, 2018 and 2017 was $23,479, $11,864 and $6,235. The Company issues registered shares of common stock to satisfy stock option exercises and restricted stock grants.

(In Thousands, Except Per Share Amounts)

The Company has awarded 450 performance options to its President and Chief Executive Officer. The options expire ten years from the date of grant and vest in increments of 25 shares when the volume adjusted weighted average closing price of the common stock of the Company as reported by NASDAQ (or any other exchange on which the common stock of the Company is listed) for 30 consecutive days equals or exceeds each of $10.00 per share, $12.50 per share, $15.00 per share, $17.50 per share, $20.00 per share, $25.00 per share, $30.00 per share, $35.00 per share and $40.00 per share. A Monte Carlo simulation was performed to estimate the fair values, vesting terms and vesting probabilities for each tranche of options. Expense calculated using these estimates was recognized over the estimated vesting terms. As of December 31, 2017, compensation costs related to non-vested performance options were fully recognized.

Employee Stock Purchase Plan

The ESPP is available to eligible employees as defined in the plan document. Under the ESPP, shares of the Company's common stock may be purchased at a discount (currently 15%) of the lesser of the closing price of the Company's common stock on the first trading day or the 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 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, 2019, there were 491 shares available for future issuance under the ESPP.

Valuation and Expense Information Under FASB ASC 718

The following table summarizes share-based compensation expense related to employees, directors and consultants for 2019, 2018 and 2017. The expense was allocated as follows:

	2019	2018	2017
Cost of revenue	$ 917	$ 1,545	$ 610
Research and development expenses	2,374	1,987	2,052
Selling, general and administrative expenses	14,686	12,963	11,953
Total	$ 17,977	$ 16,495	$ 14,615

The expense by award type was allocated as follows:

	2019	2018	2017
Restricted Stock Awards & Time-Based Stock Options	$ 13,922	$ 15,032	$ 13,908
Performance Share Awards	3,254	766	—
Performance Stock Options	—	—	43
ESPP	801	697	664
Total	$ 17,977	$ 16,495	$ 14,615

As of December 31, 2019 there was $17,971 of unrecognized compensation costs related to non-vested stock options and restricted stock arrangements ($997 relating to stock options and $16,974 relating to restricted stock). This cost is expected to be recognized over a weighted-average period of 1.8 years for stock options and 1.7 years for restricted stock. As of December 31, 2019 there was $6,625 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 1.6 years.

In calculating compensation expense, the fair value of restricted stock awards, restricted stock units and performance share awards is based on the market value of the Company's stock on the date of the awards. The fair value of the options is estimated on the grant date using the Black-Scholes model including the following assumptions:

	2019	2018	2017
Range of risk-free interest rate	1.43-2.64%	2.31 - 3.01%	1.75 - 2.12%
Range of expected life of stock options (years)	5.13 to 5.69	5.14 to 5.71	5.21 to 5.76
Range of expected volatility of stock	40.00 - 42.00%	41.00 - 42.00%	43.00 - 48.00%
Weighted-average volatility	40.87 %	41.51 %	44.50 %
Dividend yield	0.00 %	0.00 %	0.00 %

The Company's estimate of volatility is based solely on the Company's trading history 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.

(In Thousands, Except Per Share Amounts)

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 2019, 2018 and 2017 was as follows:

	2019	2018	2017
Stock options	$ 11.56	$ 10.97	$ 8.60
Restricted stock awards	30.12	18.71	19.38
Performance share awards	30.77	17.71	—

18. SEGMENT AND GEOGRAPHIC INFORMATION

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 and systems designed for the exclusion of the left atrial appendage. 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. Revenue attributed to geographic areas is based on the location of the customers to whom products are sold.

Revenue by geographic area was as follows:

	2019	2018	2017
United States	$ 185,829	$ 162,146	$ 138,387
Europe	27,929	25,912	21,901
Asia	15,976	12,687	13,616
Other international	1,073	885	812
Total international	44,978	39,484	36,329
Total revenue	$ 230,807	$ 201,630	$ 174,716

United States revenue by product type was as follows:

	2019	2018	2017
Open ablation	$ 80,205	$ 72,250	$ 64,517
Minimally invasive ablation	34,842	35,053	34,421
Appendage management	68,166	52,891	37,281
Total ablation and appendage management	183,213	160,194	136,219
Valve tools	2,616	1,952	2,168
Total United States	$ 185,829	$ 162,146	$ 138,387

International revenue by product type was as follows:

	2019	2018	2017
Open ablation	$ 24,945	$ 21,118	$ 20,718
Minimally invasive ablation	8,349	9,176	8,007
Appendage management	11,476	8,988	7,251
Total ablation and appendage management	44,770	39,282	35,976
Valve tools	208	202	353
Total international	$ 44,978	$ 39,484	$ 36,329

The Company's long-lived assets are located primarily in the United States, except for $1,228 as of December 31, 2019 and $1,296 as of December 31, 2018, which are located primarily in Europe.

(In Thousands, Except Per Share Amounts)

19. SELECTED QUARTERLY FINANCIAL DATA (UNAUDITED)

	For the Three Months Ended							
	March 31,		June 30,		September 30,		December 31,	
	2019	2018	2019	2018	2019	2018	2019	2018
Operating Results:								
Revenue	$ 53,966	$ 46,994	$ 58,906	$ 51,802	$ 56,614	$ 49,941	$ 61,321	$ 52,893
Gross profit	39,871	34,503	43,893	38,079	41,797	35,948	44,774	38,590
Loss from operations	(5,320)	(9,430)	(3,839)	958	(8,637)	(6,048)	(15,326)	(2,607)
Net loss	(5,635)	(10,134)	(4,101)	(338)	(9,362)	(7,235)	(16,096)	(3,430)
Net loss per share (basic and diluted)	$ (0.15)	$ (0.31)	$ (0.11)	$ (0.01)	$ (0.25)	$ (0.22)	$ (0.42)	$ (0.09)

Amounts may not sum to consolidated totals for the full year due to rounding. Basic and diluted net loss per share is computed independently for each of the quarters presented. Therefore, the sum of the quarterly per share amounts will not necessarily equal the total for the year.

SCHEDULE II

VALUATION AND QUALIFYING ACCOUNTS

	Beginning Balance	Additions		Deductions	Ending Balance
		Expenses	Other (1)		
Reserve for sales returns and allowances					
Year ended December 31, 2019	$ 1,410	$ 369	$ 2,240	$ 40	$ 3,979
Year ended December 31, 2018	1,169	$ 312	$ —	$ 71	$ 1,410
Year ended December 31, 2017	834	$ 441	$ —	$ 106	$ 1,169
Allowance for inventory valuation					
Year ended December 31, 2019	$ 1,029	$ 848	$ —	$ 360	$ 1,517
Year ended December 31, 2018	889	$ 718	$ —	$ 578	$ 1,029
Year ended December 31, 2017	1,080	$ 1,004	$ —	$ 1,195	$ 889
Valuation allowance for deferred tax assets					
Year ended December 31, 2019	$ 69,849	$ 10,739	$ 20,590	$ —	$ 101,178
Year ended December 31, 2018	66,973	$ 2,876	$ —	$ —	$ 69,849
Year ended December 31, 2017	81,982	$ —	$ —	$ 15,009	$ 66,973

(1) In connection with the acquisition of SentreHEART, the Company recognized an allowance for sales returns and refunds of for transition to ASC 606 to reflect SentreHEART's historical refund practices, and recorded an offsetting valuation allowance for deferred tax assets.

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 Senior Vice President 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 the Senior Vice President 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 months ended December 31, 2019 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, 2019. 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, 2019.

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. The attestation report can be found on the following page as part of this Item 9A.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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

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, 2019, 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, 2019, 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, 2019, of the Company and our report dated February 24, 2020, 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 24, 2020

ITEM 9B. OTHER INFORMATION

Effective February 21, 2020, the Company's Board of Directors re-constituted its committees as follows:

Audit: Sven A. Wehrwein (Chair), Mark R. Lanning, Daniel P. Florin, B. Kristine Johnson (Ms. Johnson's service on the Audit Committee will end effective April 1, 2020.)

Compensation: Mark R. Lanning (Chair), Mark A. Collar, B. Kristine Johnson, Karen N. Prange

Compliance, Quality and Risk: Regina E. Groves (Chair), Sven A. Wehrwein, Robert S. White, Daniel P. Florin

Nominating and Corporate Governance: Mark A. Collar (Chair), Scott W. Drake, Robert S. White, Karen N. Prange

Strategy: Robert S. White (Chair), Regina E. Groves, B. Kristine Johnson

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item is incorporated by reference to the definitive proxy statement for our 2020 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission within 120 days after the end of 2019 (the "Proxy Statement").

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item is incorporated by reference to the Proxy Statement.

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, 2019.

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)	3,623,588	$ 14	1,577,687
Equity compensation plans not approved by security holders	—	—	—
Total	3,623,588	$ 14	1,577,687

(1) Represents outstanding stock options, restricted stock awards, performance stock options and performance shares as of December 31, 2019.

(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 remaining information required by this Item is incorporated by reference to the Proxy Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this Item is incorporated by reference to the Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this Item is incorporated by reference to the Proxy Statement.

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, 2017).
4.1	Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934
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 July 1, 2019 (incorporated by reference to our Quarterly Report on Form 10-Q, filed on July 31, 2019).
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 22, 2019) (incorporated by reference to our Current Report on Form 8-K, filed on May 28, 2019).
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	Merger Agreement dated as of October 4, 2015 among nContact Surgical, Inc., AtriCure, Inc., Portal Merger Sub, Inc., Second Portal Merger Sub, LLC and WRYP Stockholder Services, LLC, as Representative of nContact stockholders (incorporated by reference to our Current Report on Form 8-K, filed on October 5, 2015).
10.12	Merger Agreement dated as of August 11, 2019 among SentreHEART, Inc., AtriCure, Inc., Stetson Merger Sub, Inc., Second Stetson Merger Sub, LLC and Shareholder Representative Services LLC, as Representative of SentreHEART stockholders (incorporated by reference to our Current Report on Form 8-K filed August 12, 2019).
10.13	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).
10.14	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).
10.15	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).
10.16#	Form of Performance Share Award Grant
14	Code of Conduct (incorporated by reference to our Annual Report on Form 10-K filed on March 1, 2019).
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.

Exhibit No.	Description
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.

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 24, 2020

/s/ Michael H. Carrel

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

Date: February 24, 2020

/s/ M. Andrew Wade

M. Andrew Wade
Chief Financial Officer
(Principal Accounting and Financial Officer)

KNOW ALL MEN AND WOMEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Michael H. Carrel and M. Andrew Wade, 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 24, 2020.

Signature	Title(s)
/s/ Scott W. Drake **Scott W. Drake**	**Scott W. Drake** *Chairman of the Board*
/s/ Michael H. Carrel **Michael H. Carrel**	**Michael H. Carrel** *Director, President and Chief Executive Officer* *(Principal Executive Officer)*
/s/ M. Andrew Wade **M. Andrew Wade**	**M. Andrew Wade** *Chief Financial Officer* *(Principal Accounting and Financial Officer)*
/s/ Mark A. Collar **Mark A. Collar**	**Mark A. Collar** *Director*
/s/ Daniel P. Florin **Daniel P. Florin**	**Daniel P. Florin** *Director*
/s/ Regina E. Groves **Regina E. Groves**	**Regina E. Groves** *Director*
/s/ B. Kristine Johnson **B. Kristine Johnson**	**B. Kristine Johnson** *Director*
/s/ Mark R. Lanning **Mark R. Lanning**	**Mark R. Lanning** *Director*
/s/ Karen N. Prange **Karen N. Prange**	**Karen N. Prange** *Director*
/s/ Sven A. Wehrwein **Sven A. Wehrwein**	**Sven A. Wehrwein** *Director*
/s/ Robert S. White **Robert S. White**	**Robert S. White** *Director*