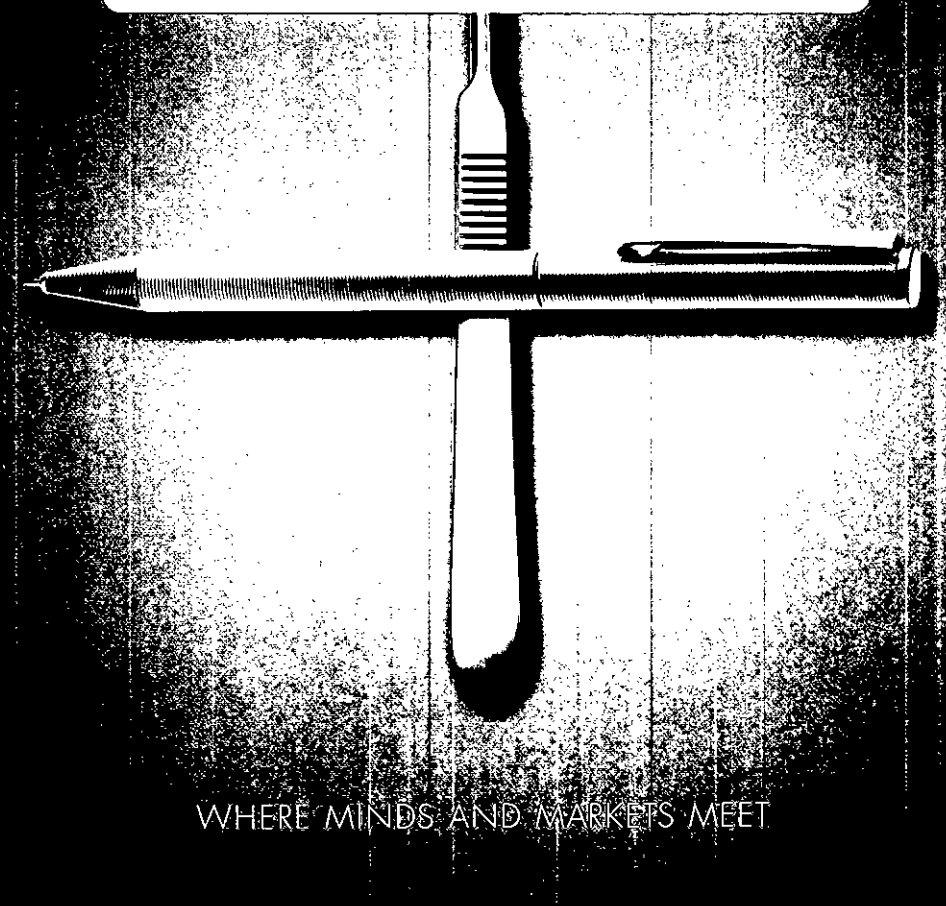
ANNUAL REPORT 2007



WHERE MINDS AND MARKETS MEET

ATS
MEDICAL
Focused right
on cardiac surgery.

A business perspective...Michael Dale.

The market opportunities that define cardiac surgery.

The percentage of the population over the age of 65 years was 12.6% in 2000 and it is projected to be 20% by 2030. The U.S. Census Bureau reports that 7,918 people turn 60 each day, a rate that corresponds to 330 people every hour. This dramatically aging global population along with continual expansion of advanced healthcare infrastructure in developing countries corresponds directly to the expected increase in structural heart disease and delivery of procedures conducted by cardiac surgeons.

Within the expanding global marketplace ATS Medical has targeted the heart valve therapy and atrial fibrillation markets; markets alone that currently approximate nearly $1.4 billion. These markets are strong, thriving and in-demand. Our continued investment in minimally-invasive approaches in these markets will serve as a significant catalyst for growth. Advancements in the development of effective stand-alone or sole therapy procedures in the AF market represent an exceptional opportunity for ATS Medical to meet enormous unmet patient needs, potentially expanding this market development opportunity to more than $3 billion.

Innovation for a less invasive future.

During the past year ATS Medical has made significant progress in advancing its therapies for the surgical treatment of cardiac arrhythmias on a stand-alone or sole therapy basis. We have proven that our current ATS CryoMaze™ Surgical Ablation products offer a successful, less invasive approach to treating cardiac arrhythmias. Currently, more than fifteen U.S. centers have performed stand-alone ablation using the existing ATS CryoMaze products.

We believe that substantial growth within the heart valve therapy industry will accompany the introduction of minimally invasive and off-pump product offerings. To address this future demand, we are currently developing various minimally invasive and off-pump aortic valve concepts. Our first product in this arena is the sutureless ATS 3f Enable™ Aortic Bioprosthesis. Designed to eliminate traditional suturing, this prosthesis stands to reduce procedure time while allowing the surgeon to improve hemodynamic performance by providing a larger size valve than currently possible with conventional implant techniques. The Enable valve is in clinical trials. We are also developing an off-pump aortic valve, the ATS 3f Entrata Aortic Valve System,™ designed to enable trans-apical delivery and deployment of the valve.

When a patient in the very near future is diagnosed with structural heart disease, it is entirely plausible that the surgeon will use an extremely effective yet minimally invasive device. That device will come from ATS Medical.

ATS Medical welcomes Dr. James L. Cox as Medical Director.

Dr. James L. Cox, a preeminent cardio-thoracic surgeon, is an authority in the surgical treatment of atrial fibrillation and one of the groundbreaking researchers on the ATS 3f tissue valve technologies, making him uniquely qualified to support the company's efforts in surgical ablation and heart valve therapy.

A medical perspective...Dr. James L. Cox.

The market opportunities that define cardiac surgery.

Cardiac surgeons in the United States currently perform approximately 500,000 cardiac operations per year. However, there are nearly 3,000,000 patients in the United States with atrial fibrillation and only 1% of them are currently treated with surgery and catheter ablation combined. Similarly, there are approximately 5,000,000 patients in the U.S. with heart failure but only 8% currently undergo diagnostic catheterization, 2% receive coronary artery stents, and 1% undergo coronary artery bypass surgery. In other words, there are 3,000,000 people in the U.S. with AF and 5,000,000 more with heart failure and 99% of them are treated with drugs that are famously suboptimal.

If satisfactory surgical therapies were developed for only 10% of these patients, cardiac surgeons would add 800,000 patients to their practices, resulting in an increase in their patient population from 500,000 to 1.3 million. More importantly, patient care would be enhanced significantly. Only innovation and new ideas can create the basis for these new surgical therapies. Fortunately the potential for innovation in cardiac surgery is unusually strong at this particular time in our history.

Innovation for a less invasive future.

Advancements in cyroablation and biological valve technology by ATS Medical provide best-in-class alternatives for a less invasive reality we all envision. As mentioned above, despite almost a decade of experience, only 1% of all patients with atrial fibrillation are currently treated by catheter ablation and surgery combined. This lack of growth speaks to the persistently high failure rate and questionable safety of catheter ablation techniques and to the unacceptable degree of invasiveness of so-called "minimally invasive" surgery for atrial fibrillation.

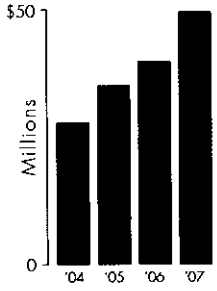
The original cut-and-sew Maze procedure was capable of curing over 90% of all patients with AF when performed correctly. Because cryosurgery has been shown to achieve similar success rates, I am very excited about the ongoing trials using the ATS CryoMaze system in a truly minimally invasive approach, the ease with which it can be adopted by surgeons and the potential it holds for treating the enormous numbers of patients who are currently under-treated for atrial fibrillation.

The ATS 3f® Aortic Bioprosthesis is the first truly new tissue valve design in the past 25 years. The unique design allows it to achieve functional performance and stress distribution that mimics the native aortic heart valve. This revolutionary tissue valve has been designed with a less invasive path in mind and is being incorporated into product iterations and advancements including sutureless 3f Enable and trans-apical 3f Entrata. I look forward to following this very promising biological valve advancement with anticipation of its potential to reduce both procedure time and the need for open chest surgery.

Proven technology and proven outcomes combined with customer need and innovation position ATS Medical to be the true leader in cardiac surgery.

Expanding on growth.

In 2007 we met or exceeded our goals for the year, achieving year-over-year revenue growth greater than 20% as well as gross profit expansion of more than 35%. Fourth quarter of 2007 saw record gains with a 32% revenue increase over the same quarter in 2006. For the full year 2007, revenue totaled $49.6M, representing a 22.6% increase over 2006.



Our singular focus has driven a diligent pursuit in developing and acquiring genuinely innovative technologies targeted to very specific areas in structural heart disease – atrial fibrillation and heart valve therapy. ATS Medical made tremendous progress in expanding our proprietary platforms in these high demand markets in 2007. We acquired novel surgical cryoablation technology, gained international approval for the ATS 3f® Aortic Bioprosthesis and began a pivotal clinical trial for the revolutionary sutureless ATS 3f Enable™ Aortic Bioprosthesis. We addressed the largest opportunity in annuloplasty repair with the entrance of the ATS Simulus® Semi-Rigid Ring and launched the ATS Open Pivot® AP360™ Mechanical Heart Valve in the U.S. market.

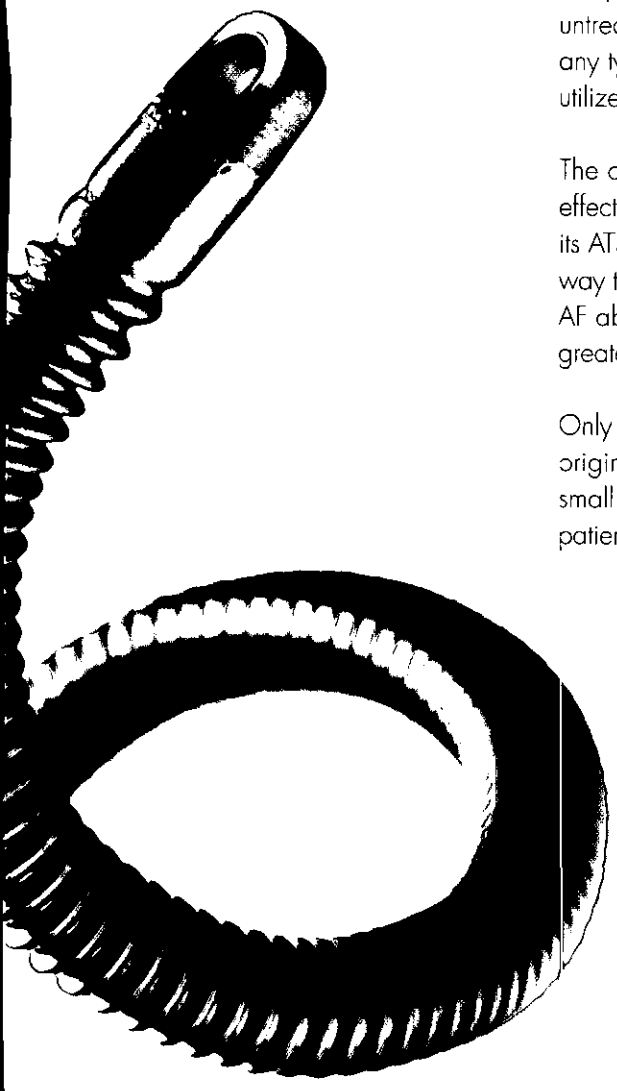
Our new development efforts have produced innovative new products designed specifically to improve safety and efficacy for cardiac surgeons and their patients. We set our sights on continued high growth in 2008 with products that we believe are superior to current alternatives in every category in which we compete. But in many ways 2008 represents the true beginning for ATS Medical – when we begin to realize the impact of our dedicated efforts and our real potential to change the medical landscape.

Michael Dale

President and CEO
ATS Medical, Inc.

At the intersection of business and clinical need, the future of cardiac surgery.

The vision for ATS Medical represents more than mere words. ATS Medical's unwavering dedication to cardiac surgery has brought together the best medical, business and technical minds to match unmet clinical needs with innovation addressing exciting new frontiers.

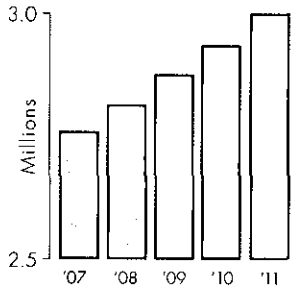


Capturing the untapped need in atrial fibrillation, the single largest market opportunity in medical devices.

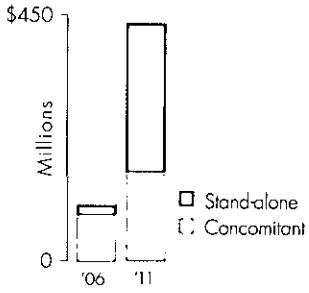
The number of patients diagnosed annually with atrial fibrillation (AF) in the U.S. is estimated to be a staggering 2,750,000[1] and growing to 3,000,000[1] by 2011. Despite this, the vast majority of patients go untreated with no opportunity for a cure. In fact, only one in 100 receives any type of interventional procedure and a high percentage of those cases utilize technology capable of achieving not more than a 60% success rate.

The compelling market development opportunity for treatment of AF is to effectively treat patients with a stand-alone, less-invasive procedure. Utilizing its ATS CryoMaze™ Surgical Ablation technology, ATS Medical is well on its way to doing just that. In fact, recently presented clinical results of stand-alone AF ablations using ATS CryoMaze and robotic techniques demonstrated a greater than 90% success rate in a six-month follow-up of 57 patients.[2]

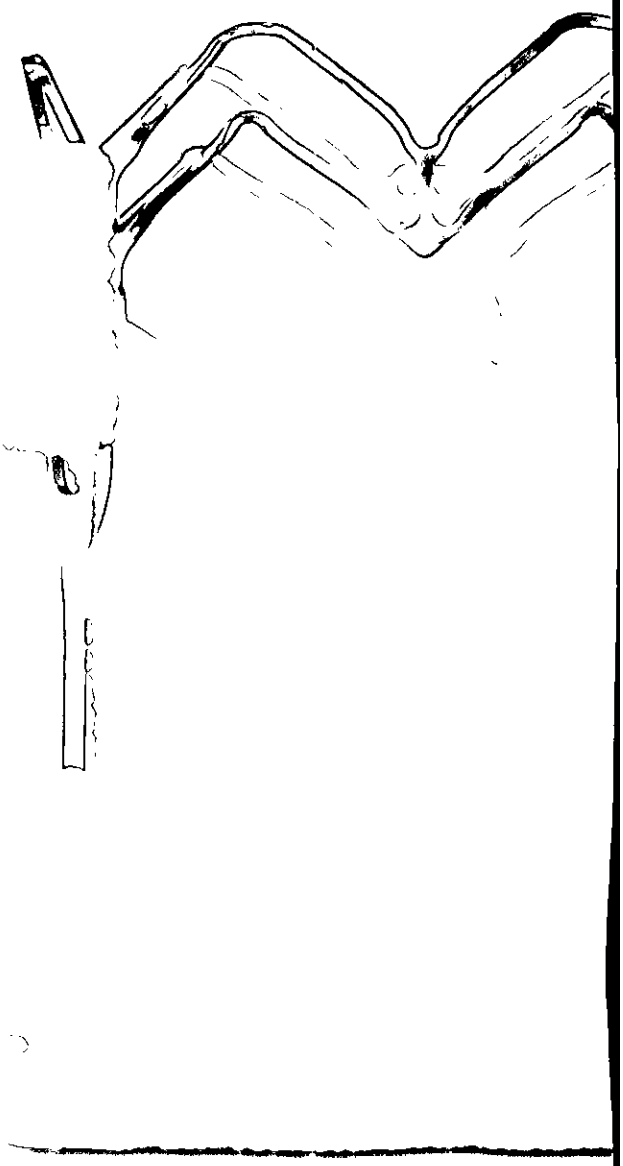
Only ATS Medical has the technology to yield clinical results similar to the original cut-and-sew Cox Maze III procedure with an approach involving small incisions. This can bridge the clinical gap for more than 50 million patients worldwide suffering from AF.



Estimated Number of Patients Diagnosed with Atrial Fibrillation[1]



Surgical Atrial Fibrillation Market Trends[3]



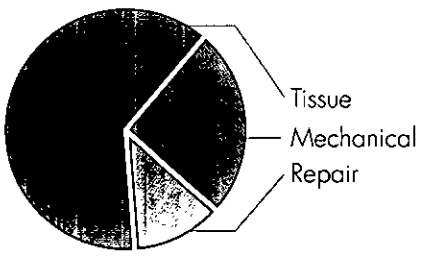
Changing the game in heart valve therapy.

The worldwide market for heart valve therapy products is estimated to be $1.2 billion. Enter ATS Medical into the fast growing and largest market segment in the category – tissue valves – estimated at $730 million globally and growing 6-8% per year.[3]

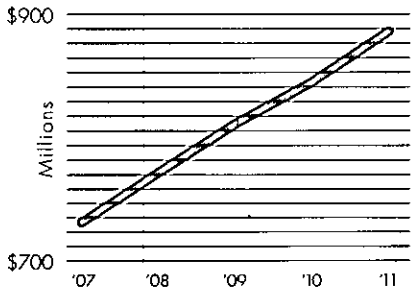
Currently available in Europe and other foreign countries with U.S. commercial approval expected in 2008, the ATS 3f® Aortic Bioprosthesis is most certainly capable of disrupting competitive market dynamics. It is the only tissue valve designed to mimic the way human heart valves are formed *in utero*, allowing naturally occurring forces to determine its shape and function.

But it would be short-sighted to view this biological valve as a single product. More accurately, it is a three-stage product platform with a defined path to a progressively less invasive reality. Consider the next stage, the ATS 3f Enable™ Aortic Bioprosthesis. Currently in clinical trials, it is the only bioprosthesis designed to eliminate the traditional suturing required in conventional cardiac surgery. After that comes the ATS 3f Entrata Aortic Valve System,™ catheter-based trans-apical delivery and deployment without the need for open chest surgery.

Disruptive indeed.

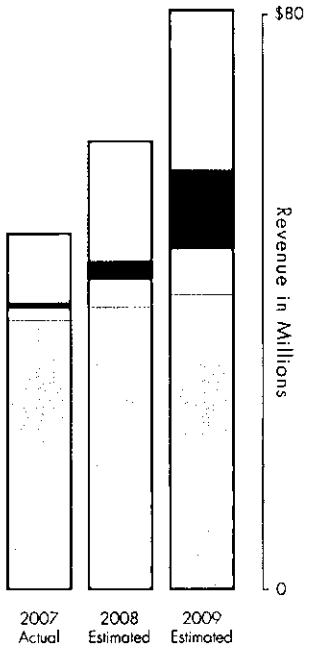


Heart Valve Therapy Market Share[3]



Tissue Heart Valve Market Trend[3]

Ready to lead.

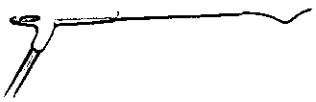


☐ ATS CryoMaze™ Surgical Ablation System

The ATS CryoMaze™ Surgical Ablation System can complete the Cox Maze III procedure – considered the gold standard in the surgical treatment of AF – with one product and one energy source. Utilizing this efficacious technology in a stand-alone, minimally invasive approach would dramatically expand the $121M global surgical ablation market. Stay tuned.

■ ATS 3f® Aortic Bioprosthesis

The ATS 3f® Aortic Bioprosthesis is a revolutionary new approach to a replacement heart valve. Targeted at the $730 million global tissue valve market, it is the first valve design of its kind in the past 25 years. Designed to mimic the way human heart valves are formed *in utero*, its unique design allows naturally occurring forces to determine its shape and function. It also allows the heart to achieve functional performance and stress distribution that mimics the native aortic valve. This groundbreaking innovation is currently being incorporated into less invasive product iterations and advancements; including the sutureless ATS 3f® Enable Aortic Bioprosthesis and the trans-apical ATS 3f Entrata Aortic Valve System™.

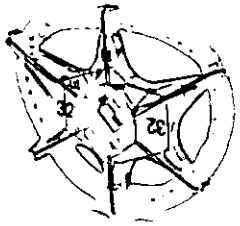


☐ ATS Open Pivot® Mechanical Heart Valve

The ATS Open Pivot® Mechanical Heart Valve enjoys 17% worldwide procedure share in the $330 million mechanical heart valve market. Introduction of the "uncompromising" ATS Open Pivot® AP360™ reveals a valve unbeatable in every aspect considered important to mechanical valve performance.

☐ ATS Simulus® Annuloplasty Rings/Bands

The worldwide market for valve repair is estimated at $142 million and growing approximately 7% per year. More surgeons are aggressively identifying and repairing earlier stage mitral valve disease that in the past was left to degenerate until valve replacement was required. ATS Medical now offers a family of annuloplasty rings and bands. This ATS Simulus® line is drawing broad surgeon accolades for ease of implant and ability to accommodate robotic or minimally-invasive surgical approaches.



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

Form 10-K

Annual Report pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934

For the Fiscal Year Ended December 31, 2007
Commission File No. 0-18602

ATS MEDICAL, INC.

(Exact name of registrant as specified in its charter)

Minnesota	**41-1595629**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*
3905 Annapolis Lane North **Minneapolis, Minnesota** *(Address of principal executive offices)*	**55447** *(Zip Code)*

Registrant's telephone number, including area code: (763) 553-7736

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

Title of each class:	**Name of each exchange on which registered:**
Common Stock, $0.01 par value	NASDAQ Global Market

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

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

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

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

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

Large accelerated filer ☐	Accelerated filer ☑
Non-accelerated filer (Do not check if a smaller reporting company) ☐	Smaller reporting company ☐

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

The aggregate market value of voting and non-voting stock held by non-affiliates of the registrant as of June 30, 2007, was approximately $112,416,424 (based on the last sale price of such stock as reported by the NASDAQ Global Market on such date).

The number of shares outstanding of the registrant's common stock, $.01 par value per share, as of March 4, 2008, was 59,768,801 shares.

DOCUMENTS INCORPORATED BY REFERENCE

Pursuant to General Instruction G, the responses to Items 10, 11, 12, 13 and 14 of Part III of this Form 10-K are incorporated herein by reference to certain information contained in the registrant's definitive Proxy Statement for its 2008 Annual Meeting of Shareholder.

PART I

ITEM 1. BUSINESS

OVERVIEW

ATS Medical, Inc. (hereinafter the "Company," "ATS," "we," "us," or "our") is a Minnesota corporation established in 1987. Our common shares are traded on the NASDAQ Global Market under the symbol ATSI.

We develop, manufacture, and market medical devices for the treatment of structural heart disease. Our product offerings are focused on heart valve therapy and the surgical treatment of cardiac arrhythmias. Our core mission is to build a company with a diversified product portfolio focused exclusively on the cardiac surgeon. Our objectives are to establish ATS products as the standard of care for patients with structural heart disease.

From our founding until 2004, 100% of our revenue was from our first product – a mechanical heart valve. Sales of our mechanical heart valves represented approximately 72% of our revenue in 2007, compared to 82% and 90% of revenue in 2006 and 2005, respectively. Beginning in 2004, we began to execute our diversification strategy and since have added several product lines through distribution agreements or acquisitions. The most significant of these transactions are:

- **Surgical Treatment of Atrial Fibrillation** – In November 2004 we entered into a distribution agreement with CryoCath Technologies, Inc. ("CryoCath") to distribute a set of products for the surgical treatment of atrial fibrillation. In June 2007, we acquired this business from CryoCath for approximately $22.0 million. In 2007, we had revenue from these products of approximately $9.7 million or 19.5% of our revenue compared to $4.6 million or 11.3% of our revenue in 2006 and $2.5 million or 7.1% of our revenue in 2005.
- **Heart Valve Repair** – In June 2005, we entered into a development and distribution agreement with Genesee BioMedical, Inc. ("GBI"), under which we co-developed a novel line of mitral valve repair rings and bands. In 2007, we had revenue from these products of approximately $1.8 million compared to $1.0 million in 2006 and no revenue in 2005.
- **Tissue Heart Valves** – In September 2006, we acquired 3F Therapeutics, Inc. ("3F Therapeutics" or "3F"), which had developed a line of tissue heart valves based on a unique design. Approval of the first generation tissue valve in the United States is anticipated in the latter half of 2008 with three platforms for deployment, including less invasive sutureless designs. Revenues from our limited commercialization efforts outside the United States totaled approximately $0.5 million in 2007.

The marketing and sales of these new non-mechanical valve products leverage both our sales and marketing infrastructure and broaden our relationships with cardiac surgeons. Sales from these and other new products have grown over the last four years from no revenue in 2004 to 28% of our total revenue in 2007.

Heart valve therapy revenue consists of revenue from the sale of our mechanical heart valves, tissue heart valves, heart valve repair products and allograft tissue valves. These products primarily relate to the repair or replacement of the aortic or mitral valves.

Surgical treatment of atrial fibrillation products consist of tools used to create lesions on cardiac tissue to inhibit abnormal electrical impulses in the upper chambers of the heart.

Net sales by product group for 2007, 2006 and 2005 are discussed in Item 7 of this Form 10-K.

BUSINESS STRATEGY

The key components of our business strategy to create a profitable, diversified, cardiac surgery-focused company include:

- Increase market share of all our core products, including the ATS Open Pivot® Heart Valve, ATS CryoMaze™ Surgical Ablation products, ATS Simulus® Flexible annuloplasty repair rings and bands and the ATS 3F® Aortic Bioprosthesis tissue heart valve.
- Broaden our relationships with cardiac surgeons by selectively adding new medical devices to our product portfolio.
- Leverage our investments in our marketing and sales infrastructure.
- Lower our cost of goods sold.

OUR MARKETS AND PRODUCTS

Heart Valve Therapy

Heart valve therapy revenue consists of prosthetic heart valves (both mechanical and tissue heart valves), and heart valve repair products. For 2007, heart valve therapy revenue was $38.6 million, or 78% of revenue, compared to $35.3 million, or 87% of revenue, in 2006 and $31.7 million, or 91% of revenue, in 2005. Based on data from Millennium Research Group 2007 and Piper Jaffray Equity Research, the current total worldwide heart valve market approximates $1.2 billion.

Prosthetic Heart Valve Market

Overview

There are two types of replacement heart valves: tissue and mechanical. Mechanical valves are made from highly durable materials such as metals and pyrolytic carbon with implant longevity well in excess of any patient's lifetime. Tissue valves are made from animal or cadaver tissue or, in some cases, the patient's own tissue. Tissue valves have a finite durability and may experience structural valve deterioration requiring a re-operation to replace the failed valve. They are suitable for patients less able to tolerate anti-coagulants, those who have a life expectancy less than the projected longevity of tissue valves, or women in their childbearing years.

Cardiac surgeons choose a valve through consideration of valve selection criteria and a patient's life expectancy, medical conditions, and lifestyle preferences. Besides durability, a valve's design and materials determine its thrombogenicity, which is the tendency to contribute to the formation of thrombus or blood clots. Thrombus can impair the performance of a valve. If the thrombus detaches and begins to move through the bloodstream (embolus), it may create an arterial blockage leading to stroke or infarction. Mechanical valve recipients must take anticoagulants to reduce and control thrombogenicity, while tissue valves do not usually require anticoagulant therapy. Hemodynamics, the measure of how efficiently blood flows through a prosthetic valve, is an important selection criteria. Blood must flow easily through the valve with minimal pressure required to open the valve leaflets and limited backflow of blood when the leaflets close. The valve should exert minimal force on the blood so that damage to fragile blood cells is limited. Other factors that are important in a surgeon's choice of a prosthetic valve are the ease of implantation, patient quality of life and the physician's familiarity with and confidence in the valve.

In addition to cardiac surgeons, administrators or business managers at hospitals and clinics have become increasingly influential in the purchase decision-making process in recent years. The increasing emphasis on medical cost containment in most world markets has elevated the decision-making power of the administrator. The administrator tends to focus on cost-effectiveness and, in some markets, primarily on the cost of the valve.

The worldwide market for prosthetic heart valves is $1.06 billion and in aggregate is projected to grow at 2% per year. Over time, the mix between mechanical and tissue prosthesis has varied significantly. It is estimated that the current prosthesis market consists of a worldwide mechanical heart valve market of $330 million declining at 5% year-over-year, and a worldwide tissue heart valve market of $730 million growing at 6% year-over-year, per Millennium Research Group 2007 and Piper Jaffray Equity Research.

Our Mechanical Heart Valve Products

Our ATS Open Pivot Heart Valve was designed to improve upon existing mechanical heart valves by combining a proprietary open pivot design and other innovative features with the widely accepted biocompatibility and durability of pyrolytic carbon.

The major design features of the ATS Open Pivot Heart Valve include:

- Open pivot areas are exposed to the washing action of flowing blood with each cardiac cycle
- A thin but durable pyrolytic carbon orifice surrounded by a titanium strengthening band
- Low profile design
- Multiple sewing cuff options
- Bileaflet valve design
- Enhanced radiopacity

The ATS Open Pivot Heart Valve provides the following advantages over other currently available mechanical heart valves:

- Open pivot washing contributes to low thromboembolic complications
- Improved patient quality of life through lower noise levels
- Improved hemodynamic efficiencies
- Ease of implantation and valve rotation
- Improved follow-up diagnostic capability

CarboMedics, Inc. ("CarboMedics," f/k/a Sulzer CarboMedics) developed the basic design from which the ATS Open Pivot Heart Valve evolved. In September 1990 we entered into a license agreement with CarboMedics under which we eventually held an exclusive, royalty-free, worldwide license to CarboMedic's open pivot, bileaflet mechanical heart valve design. After making some design changes in the valve, we finalized the design of the ATS Open Pivot Heart Valve and filed and received our own U.S. patent covering the design of the ATS Open Pivot Heart Valve. The design modifications and the resulting U.S. patent covering the new design are the exclusive property of ATS.

In connection with the execution of the license agreement, we were also required to enter into a long-term supply agreement with CarboMedics in September 1990 under which we were obligated to purchase pyrolytic carbon components for the ATS Open Pivot Heart Valve from CarboMedics. In December 1999, we entered into a carbon technology agreement with CarboMedics under which we obtained an exclusive, worldwide right and license to use CarboMedics' pyrolytic carbon technology to manufacture components for the ATS Open Pivot Heart Valve. Under the agreement, CarboMedics also assisted us in establishing our own pyrolytic carbon component production facility in Minneapolis, Minnesota.

In June 2002, the long-term supply agreement with CarboMedics was amended to suspend our purchase obligations for the remainder of 2002 and all of 2003, 2004, 2005 and 2006. The 2002 through 2006 purchase obligations were scheduled to resume, beginning in 2007; however, we believe that CarboMedics subsequently repudiated and breached the agreement. In January 2007, CarboMedics served a complaint on us, seeking to enforce the contractual purchase obligations and monetary damages. This litigation is described in this Form 10-K under Part I, Item 3. "Legal Proceedings."

Our Tissue Heart Valve Products

In September 2006, ATS Medical acquired 3F Therapeutics, a medical device company based in Lake Forest, California. 3F was an early stage medical device company at the forefront of the emerging field of less invasive and minimally invasive closed chest tissue valve replacement. We view the acquisition of 3F as a major step in executing our long-standing vision of obtaining a leadership position in all segments of the cardiac surgery market.

ATS 3F Aortic Bioprosthesis

We have completed the development of our first generation tissue valve product, the ATS 3F Aortic Bioprosthesis. This prosthesis is a biological replacement aortic heart valve that has received the CE Mark and is available for commercial release in Europe and other foreign countries. In our premarket approval study conducted for purposes of obtaining approval of the Food and Drug Administration ("FDA") for this valve in the United States, over 400 patients were implanted, totaling over 900 patient years of data to date. The initial results have shown properties that compare favorably with both mechanical and biological valves presently in the market. The final clinical module of the premarket approval application to the FDA for the ATS 3F Aortic Bioprosthesis was submitted during October 2006 and we anticipate receiving FDA approval to commercialize this product in the second half of 2008.

The major design features of the ATS 3F Aortic Bioprosthesis include:

- Tubular valve design, which mimics native aortic valve in form and function
- Stentless design
- Pericardial tissue

The ATS 3F Aortic Bioprosthesis provides the following advantages over other currently available tissue valves:

- Excellent hemodynamics through large effective orifice areas and low pressure gradients
- Maintains natural sinus function for potential improvements in hemodynamic performance and durability
- No anticoagulation required

We believe that substantial growth in the future within the heart valve industry will be the result of the introduction of minimally invasive and off-pump products. To address this future demand, we are currently developing various minimally invasive and off-pump aortic valve concepts.

Our first product in this arena is the sutureless ATS 3F Enable™ Aortic Heart Valve, which is intended to reduce surgical cross-clamp and cardio-pulmonary bypass time. The Enable Aortic Heart Valve is designed to eliminate the traditional suturing required to replace a patient's diseased aortic heart valve. If suturing can be eliminated from the procedure, surgeons can potentially reduce procedure time and offer less invasive options for the treatment of aortic valve disease. In addition, the elimination of suturing offers the potential to significantly improve valve related hemodynamics by allowing the surgeon to provide a replacement valve of a size larger than what is traditionally possible with conventionally sutured heart valves. The Enable Aortic Heart Valve is presently in clinical studies outside the United States. To date, 58 patients had undergone aortic valve replacement with the Enable Aortic Heart Valve at seven investigative sites in Europe within both the feasibility and pivotal clinical trial phases, and eight patients had surpassed the two-year implant duration.

We are also developing an off-pump aortic valve, the ATS Entrata Aortic Valve System™, using technology and intellectual property, some of which is shared co-exclusively with Edwards Lifesciences Corporation.

Prosthetic Heart Valve Competition

The prosthetic heart valve market is highly competitive with St. Jude Medical, Inc. as the mechanical valve market share leader and Edwards Lifesciences Corporation as the tissue valve market leader. Other companies that sell mechanical valves include Medtronic, Inc., CarboMedics, Sorin Biomedica sPa (only outside the United States), and Medical Carbon Research Institute LLC. Other companies that sell tissue valves include St. Jude Medical, Medtronic, Sorin Biomedica and CryoLife, Inc.

We are aware of several companies that are developing new prosthetic heart valves. Several companies are developing and testing new autologous (created from the patient's own tissue) valves, potentially more durable tissue valves and new bileaflet and trileaflet mechanical designs. Other companies are pursuing biocompatible coatings to be applied to mechanical valves in an effort to reduce the incidence of thromboembolic events and to treat tissue valves to forestall or eliminate calcific degeneration in these valves. Competition within the prosthetic heart valve market is based on, among other things, clinical performance record, minimizing complications, ease-of-use for the surgeon, patient comfort and quality of life and cost-effectiveness.

We believe that the most important factors in a heart surgeon's selection of a particular prosthetic valve are the perceived benefits of the valve and the heart surgeon's confidence in the valve design. As a result, valves that have developed a favorable clinical performance record have a significant marketing advantage over new valves. In addition, negative publicity resulting from isolated incidents can have a significant negative effect on a valve's overall acceptance. Our success is dependent upon the surgeon's willingness to use a new prosthetic heart valve as well as the future clinical performance of the ATS Open Pivot Heart Valve and the ATS 3F tissue heart valves compared with the more established competition.

Heart Valve Repair Market

Overview

Depending on the type and severity of a patient's heart valve disease, it may be preferable to repair their damaged valve as opposed to complete removal and replacement with either a mechanical or tissue heart valve. The worldwide market for heart valve repair is estimated at $142 million and growing approximately 7% per year, according to Millennium Research Group 2007 and Piper Jaffray Equity Research.

Our Heart Valve Repair Products

We commenced development and manufacturing of a line of cardiac surgical products in 2005 pursuant to our exclusive worldwide development, supply and distribution agreement with GBI. Our partnership with GBI provides us with access to a portfolio of patents; intellectual property and important manufacturing and product development experience specific to heart valve repair and the related tools and accessories for entry into this segment of the heart valve therapy market.

In February 2006, we began to market and sell the first of these products, the ATS Simulus® Flexible annuloplasty repair rings and bands. This is a fully flexible ring that conforms to a patient's unique anatomy. In 2007, we received FDA clearance for the ATS Simulus® Semi-Rigid Annuloplasty Ring and our ATS Simulus® Adjustable repair rings. The semi-rigid ring features a unique Flex-Zone™ anterior segment, which respects the natural motion of the mitral annulus and its proximity to the aortic valve, allowing for a safer, more physiologic valve repair. The adjustable ring incorporates many of the same features of the flexible rings and bands while allowing the surgeon to precisely accommodate individual patient anatomies by adjusting the positioning and shape of the ring after implantation.

The major design features of the ATS Simulus annuloplasty rings include:

- Generous suture target area
- Semi-rigid ring employs unique Flex-zone flexible anterior segment with semi-rigid posterior segment
- Adjustable flexible ring can be adjusted symmetrically or asymmetrically after implantation

The ATS Simulus annuloplasty rings provide the following advantages over other currently available annuloplasty rings:

- Ease of suture placement in traditional open chest repair procedures
- Readily accommodates robotic or minimally invasive surgical approaches
- Semi-rigid ring accommodates anterior annular movement while allowing for posterior annular remodeling
- Adjustable ring allows precise matching with individual patient anatomy

Heart Valve Repair Market Competition

Advancements are being made in surgical procedures such as mitral valve reconstruction, whereby the natural mitral valve is repaired, delaying the need for a replacement valve. Developments include continued expansion of the available repair rings and bands to fit physician needs and specific patient anatomies and to enable less invasive surgery. The heart valve repair market is very competitive. Edwards Lifesciences is the market leader. Medtronic, St Jude Medical and Sorin Biomedical also participate in the heart valve repair market.

Surgical Cardiac Ablation Market

Overview

Atrial fibrillation ("AF") is the most common type of irregular heartbeat. It is found in about three million Americans and the incidence increases with age. When a person has AF, the electrical impulses that control the natural heartbeat travel erratically. The result is a very rapid and disorganized atrial heartbeat. Because the atria are beating rapidly and irregularly, blood does not flow through the atria as quickly or efficiently. The inefficient beating can cause clots to form. If a clot is pumped out of the heart, it can travel to the brain, resulting in a stroke. The likelihood of a stroke in people with AF is 5 to 7 times higher than in the general population. AF combined with a prolonged rapid heart rate can also lead to heart failure.

Cryoablation involves the use of extremely cold temperatures to stop electrical conductivity in certain areas of the heart while leaving underlying connective tissues largely unaffected.. Additionally, by placing lines of ablation in a specific anatomic pattern, the surgeon can direct the path of electrical impulses to restore sinus conduction.

Historically, the ablation pattern that has the greatest success in restoring sinus rhythm is the original cut-and-sew Maze procedure established by Dr. James L. Cox. The Maze procedure has demonstrated freedom from AF with over 15 years of follow-up data. Cryoablation allows surgeons to perform the Maze procedure with a less invasive technique.

The U.S. market for the surgical cardiac ablation market is estimated at $100 million, according to Millennium Research Group 2007. The worldwide market for the surgical cardiac ablation market is estimated at $121 million and growing approximately 17% per year, according to Millennium Research Group 2007 and Piper Jaffray Equity Research.

Our Surgical Cryotherapy Products

We market and sell surgical cryoablation products for the treatment of cardiac arrhythmias acquired through our June 2007 acquisition of the surgical cryoablation business of CryoCath.

We started marketing and selling this technology in the United States in the first quarter of 2005 and in markets outside of the United States in the second quarter of 2005 under a November 2004 global partnership agreement with CryoCath. Pursuant to this partnership, we were granted co-promotion rights in the United States, earning an agency commission on sales to accounts as specified in the partnership agreement, and distribution rights in the rest of the world. This partnership agreement was in effect until our acquisition of CryoCath's surgical cryoablation business in June 2007.

We currently market and sell four surgical cryotherapy products, including the ATS CryoMaze™ Surgical Ablation Probe (7 and 10 cm sizes), the ATS FrostByte™ Surgical Ablation Clamp and the ATS CryoMaze Surgical Ablation Console. Most of our cryotherapy product revenue is derived from probes, which are single-use devices used for freezing tissue in seconds and which are very malleable to conform to an individual's anatomy. To date, the cryotherapy products we have sold have been focused on open chest surgical procedures performed concomitantly with other cardiac surgery procedures.

The major design features of the ATS CryoMaze products include:

- The ablation probe is malleable to conform to the shape of the tissue.
- The probes feature a sleeve to adjust the lesion length.
- Argon-based cryoablation freezes rapidly and can reach temperatures as low as -160C.
- The size and malleability of the probe allow it to be easily used in minimally invasive access sites and robotic manipulation.

Cryotherapy provides the following advantages over the more prevalent heat-based therapies:

- Cryoablation adheres to the heart tissue during therapy, keeping the device in place.
- Cryoablation does not produce thrombus.
- Cryoablation preserves the integrity of the heart's collagen matrix.
- Cryoablation can safely create all of the lesion lines of the Maze procedure.

During 2008, we plan to launch new products and protocols, which will provide us with an entrance into the market for stand-alone surgical treatment of AF.

Advancements in the market for surgical ablation include tools to enable safer, quicker, and more effective lesions creation in cardiac tissue. The market today consists primarily of Atrial Fibrillation treatment in conjunction with or concomitant to another cardiac surgery procedure and done with an open chest. We are aware of several companies that are developing new ablation tools. The majority of these tools utilize heat-based energy and will therefore not be able to safely complete the Maze lesion set. There has been a recent trend among cardiac surgeons to hold surgical ablation technologies to a higher level of scrutiny with advanced long-term monitoring to ensure freedom from Atrial Fibrillation. We believe these new tools will be held to this new standard of scrutiny.

Significant efforts are currently being developed to enable a sole therapy solution consisting of a full Maze lesion set that can be achieved with a closed chest with port access on a beating heart.

Surgical Cardiac Ablation Competition

Competition in the surgical AF market consists primarily of heat-based energy sources from AtriCure, Inc. and Medtronic. ATS cryoablation products hold a third-place position in the market, with approximately 12% of the U.S. market. Other companies that produce AF ablation technologies include St Jude Medical and Estech. Boston

Scientific Corporation, which previously held the fourth-place position (Health Research International, 2006 data), has recently disbanded their microwave-based product line.

MARKETING, SALES AND DISTRIBUTION

Overview

A key component of our business strategy is to leverage the investments we have made in our marketing, sales and distribution resources through higher sales of new products in addition to increased sales of our ATS Open Pivot Heart Valve. We have been steadily building both our domestic and international sales and marketing infrastructure. Because sales prices in the United States exceed sales prices in most other markets, we believe our future success will, in large measure, depend on achieving increased market share and leveraging our sales force through the introduction of new products in the United States. In 2007, our U.S. sales were 38% of overall sales. In 2000, U.S. sales represented 4% of overall sales. See Note 15 of "Notes to Consolidated Financial Statements" in Item 8 of this Form 10-K for more information regarding our sales to customers.

U.S. Marketing and Sales

As of December 31, 2007, our sales organization in the United States consists of a Vice President of Sales and three area directors managing 28 sales territories. Our representation within these territories consists of both direct sales representatives and independent agents. We focus our sales and marketing efforts on increasing awareness of our products in the approximately 950 U.S. open heart centers.

International Marketing, Sales and Distribution

During 2006, we opened an administrative office in Austria, which we utilize as the European support center for our current and future direct selling operations in Europe. We have direct sales organizations in France (since 2003), Germany (since 2005), the United Kingdom (since 2006), Belgium and the Netherlands (started in 2007) and Switzerland (also started in 2007) as well as direct marketing organizations in China (since 2004) and India (since 2005). For our European direct selling operations, we maintain consignment inventories at in-country hospitals.

We sell through independent distribution networks in other markets throughout the world. We believe that our distribution partners have provided a rapid and cost-efficient means of increasing market penetration and commercial acceptance of our products in key international markets. We have been able to attract experienced medical device sales organizations and people familiar with local markets and customs to serve as our representatives. Each of our independent distributors has the exclusive right to sell certain ATS products within a defined territory. These distributors, in some instances, also market other medical products, although they have agreed not to sell other mechanical heart valves. Under most of the distributor agreements, we may, at our option, terminate the agreement upon the departure of certain key employees of the distributor, if we experience a change in control or if key performance criteria, including sales quotas, are not met. Our sales, marketing and customer service personnel provide professional sales, marketing and promotional support to our independent distributors. We sell our products to international distributors F.O.B. Minneapolis, Minnesota, denominated in U.S. dollars. See Note 15 of "Notes to Consolidated Financial Statements" in Item 8 of this Form 10-K for information on our net sales by geographic region. Net sales both inside and outside the United States are also discussed in Item 7 of this Form 10-K.

Competition

Competition in the medical device industry is intense and is characterized by extensive research efforts and rapid technological progress. We believe the primary competitive factors include quality, technical capability, innovation, distribution capabilities and price. Many of our competitors in the heart valve market have greater resources, more widely-accepted products, greater technical capabilities and stronger name recognition than we do. Our competitive capability is affected by our ability to support our products, ensure regulatory compliance for our products, protect the proprietary technology of our products and their manufacturing processes, effectively market our products, and maintain and establish distribution relationships. In order to maintain these capabilities, ATS must continuously attract and retain skilled and dedicated employees and develop and maintain excellent relationships with physicians and suppliers.

Cardiac surgery products are currently being marketed to hospitals at prices that vary significantly from country to country due to market conditions, currency valuations, distributor mark-ups and government regulations. In many

markets, government agencies are imposing or proposing price controls or restrictions on medical products. We work with our independent distributors to price our products in each market to meet these limitations. In addition, our primary competitors have the ability, due to economies of scale, to manufacture their valves at a lower cost than we can currently manufacture the ATS Open Pivot and ATS 3F heart valves. The market leader has occasionally used price as a method to compete in several markets.

MANUFACTURING AND SUPPLY

Our mechanical heart valves are manufactured in ISO 13485:2003 certified facilities. We have two mechanical heart valve production facilities in close proximity in Plymouth, a suburb of Minneapolis, Minnesota, for our manufacturing activities. Our pyrolytic carbon mechanical valve components are manufactured in one facility. In the other facility, we assemble our mechanical valves in controlled clean room environments. Most of the materials we purchase for our products are supplied by a limited number of vendors. We are currently operating one manufacturing shift at our valve assembly facility. At our pyrolytic carbon facility, most processes are operating one manufacturing shift while some operate up to three manufacturing shifts. We have been ramping up our pyrolytic carbon manufacturing facility over the past three years under an initiative to become a low-cost, self-supplier of the critical carbon components necessary to manufacture our mechanical heart valves. While this initiative has resulted in ramp-up and start-up expenses, low initial production yields, and higher-than-normal scrap costs, our gross margins have improved in 2005, 2006 and 2007.

Our ATS 3F tissue heart valves are manufactured in a controlled clean room environment in an ISO 13485:2003 certified facility in Lake Forest, California. Most of the materials used to construct the valve are supplied by a limited number of qualified vendors. We currently operate one manufacturing shift at the Lake Forest facility. We have been ramping up our tissue valve production in preparation for a market launch of the ATS 3F Aortic Bioprosthesis. In addition, we also manufacture significant quantities of our next generation tissue valves for use in pre-clinical and clinical testing. These initiatives have resulted in low production yields and inefficiencies. As our tissue valve volume increases, we expect our yields will increase and our process will become more efficient.

We are currently in the process of qualifying and ramping up the production of surgical cryotherapy products after our June 2007 acquisition of the surgical cryoablation business of CryoCath. We anticipate we will continue to purchase inventory from CryoCath until mid-2008. The Plymouth, Minnesota manufacturing facility has been approved by international regulatory agencies to manufacture surgical cryotherapy products. Prior to the manufacturing transition, we anticipate we will incur significant period costs related to under-absorption of labor and overhead costs as well as training, testing and validation costs.

For our heart valve repair and surgical tools and accessories franchises, we do not manufacture or produce the products we sell, and we only service some of these products.

We believe our properties are adequate to serve our business operations for the foreseeable future. At our Plymouth, Minnesota facility and our sales offices for our foreign subsidiaries in France and Germany, we warehouse our mechanical valve inventories and products for cardiac arrhythmias and heart valve repair.

We maintain a comprehensive quality assurance and quality control program, which includes documentation of all material specifications, operating procedures, equipment maintenance and quality control test methods. Our documentation systems comply with the FDA Quality System Regulation ("QSR") and ISO 13485:2003 requirements.

RESEARCH AND DEVELOPMENT

Our research and development ("R & D") activities include developing new products, improving our current products, and the clinical and regulatory activities to support our products. These activities are carried out in our Plymouth and Lake Forest facilities, although we work with physicians, research hospitals and universities around the world. None of this work is funded by customers or other outside institutions. The development process for any new product can range from several months to several years, primarily depending on the regulatory pathway required for approval. R & D expenses totaled $7.5 million in 2007, net of $3.5 million of in-process research and development related to the CryoCath asset acquisition, $3.4 million in 2006, net of $14.4 million of in-process research and development related to the 3F acquisition, and $1.7 million in 2005. At December 31, 2007 our R & D headcount totaled 20 employees.

FINANCIAL INFORMATION ABOUT SEGMENTS

Since our inception, we have operated in the single industry segment of developing, manufacturing and marketing medical devices.

SEASONALITY

Our sales and operating results have varied and are expected to continue to vary significantly from quarter to quarter as a result of seasonal patterns. We expect that our business will be seasonal, with the third quarter of each year typically having the lowest sales, due to vacation and time-off periods in our international markets, especially Europe.

PATENTS AND PROPRIETARY TECHNOLOGY

Our policy is to protect our proprietary position by securing U.S. and foreign patents that cover the technology, inventions and improvements important to our business. The original patent obtained by CarboMedics under which our valve was developed expired in 2004. We subsequently made modifications to the basic design. We obtained a U.S. patent covering the improvements to the ATS Open Pivot Heart Valve in October 1994. This patent expires in 2011. We have also obtained issued patents in Japan, Belgium, France, Germany, the Netherlands, Spain, Switzerland and the United Kingdom relating to these improvements. We cannot be certain that any patents will not be challenged or circumvented by competitors.

Our ATS 3F tissue valve platforms are supported by an extensive intellectual property portfolio. We own 65 issued U.S. and foreign patents and 49 U.S. and foreign patent applications that protect our core technology in the tissue valve market. These patents expire on various dates ranging from September 2011 to April 2025, with 10 of the patents expiring in 2013 and 46 of the patents expiring in the period from 2021 to 2025. We also hold co-exclusive rights to certain intellectual property, including the "Anderson Patents" for minimally invasive valve deployment.

Our ATS cryoablation platforms for treatment of AF are also supported by a licensed intellectual property portfolio comprising 16 issued U.S. and foreign patents and 17 U.S. and foreign patent applications that protect our core technology in the market. These patents expire on various dates ranging from September 2016 to June 2023.

The effect of these patents is to give us the ability to practice certain technologies and the right to preclude third parties from making, using, selling or offering to sell products which infringe upon the claims made in each of these patents within the jurisdiction of the country where the patent is issued. We believe the claims covered by the issued patents are broad and cover many unique attributes of the products we plan for commercialization and the processes we use to fabricate these products.

We also rely on trade secrets and technical know-how in the manufacture and marketing of both our mechanical and tissue heart valves. We typically require our employees, consultants and contractors to execute confidentiality agreements with respect to our proprietary information.

We claim trademark protection on ATS Medical™, ATS Open Pivot®, ATS 3F® Aortic Bioprosthesis, ATS 3F Enable™ Aortic Bioprosthesis and ATS CryoMaze™ and either claim or have applied for trademark or tradename protection on most of our product offering names. U.S. trademark and service mark registrations are generally for a term of 10 years, renewable every 10 years so long as the trademark is used in the regular course of trade. We have also been granted rights by certain partners to use their trademark(s) in our sales and marketing activities of their products and services.

GOVERNMENT REGULATION

United States

Numerous governmental authorities, principally the FDA and corresponding state regulatory agencies, strictly regulate our products and research and development activities. The Federal Food, Drug, and Cosmetic Act, the regulations promulgated under this act, and other federal and state statutes and regulations, govern, among other things, the pre-clinical and clinical testing, design, manufacture, safety, efficacy, labeling, storage, record keeping, advertising and promotion of medical devices. The FDA classifies our ATS heart valves as a Class III device, which is subject to the highest level of controls.

Generally, before we can market a new medical device, we must obtain marketing clearance through a 510(k) premarket notification, approval of a premarket approval application ("PMA") or approval of product development protocol ("PDP"). A PMA or PDP application must be submitted if a proposed device does not qualify for a 510(k) premarket clearance procedure. It generally takes several months from the date of a 510(k) submission to obtain clearance, but it may take longer, particularly if a clinical trial is required. The PMA and PDP process can be expensive, uncertain, require detailed and comprehensive data and generally take significantly longer than the 510(k) process.

If human clinical trials of a device are required, either for a 510(k) submission or a PMA application, the sponsor of the trial, usually the manufacturer or the distributor of the device, must file an investigational device exemption ("IDE") application prior to commencing human clinical trials. The IDE application must be supported by data, typically including the results of animal and/or laboratory testing. If the IDE application is approved by the FDA and one or more appropriate institutional review boards ("IRBs"), human clinical trials may begin at a specific number of investigational sites with a specific number of patients, as approved by the FDA. If the device presents a non-significant risk to the patient, a sponsor may begin the clinical trial after obtaining approval for the study by the IRBs without separate approval from the FDA. Submission of an IDE does not give assurance that the FDA will approve the IDE and, if it is approved, there can be no assurance the FDA will determine that the data derived from the studies support the safety and efficacy of the device or warrant the continuation of clinical trials. An IDE supplement must be submitted to and approved by the FDA before a sponsor or investigator may make a change to the investigational plan that may affect its scientific soundness, study indication or the rights, safety or welfare of human subjects.

We are also subject to the FDA QSR concerning manufacturing processes and reporting obligations. These regulations require that manufacturing steps be performed according to FDA standards and in accordance with documentation, control and testing standards. The FDA monitors compliance with its good manufacturing practices regulations by conducting periodic inspections. We are required to provide information to the FDA on adverse incidents as well as maintain a detailed record keeping system in accordance with FDA guidelines.

The advertising of our products is also subject to both FDA and Federal Trade Commission regulations. In addition, we will be subject to the "fraud and abuse" laws and regulations promulgated by the U.S. Department of Health and Human Services and the U.S. Health Care Finance Administration if we sell ATS products to Medicare or Medicaid patients. Under these regulations, it is a criminal offense (subject to certain exceptions) to knowingly or willfully offer, pay, solicit or receive remuneration in order to induce business for which reimbursement may be provided under a federal healthcare program.

If the FDA believes we are not in compliance with law, it can institute proceedings to detain or seize products, issue a recall, enjoin future violations and assess civil and criminal penalties against us and our officers and employees. If we fail to comply with these regulatory requirements, our business, financial condition and operating results could be harmed. In addition, regulations regarding the manufacture and sale of our products are subject to change. We cannot predict the effect, if any, that these changes might have on our business, financial condition and operating results.

International

In order to market our products in European and other foreign countries, we must obtain required regulatory approvals and comply with extensive regulations governing product safety, quality and manufacturing processes. These regulations vary significantly from country to country and with respect to the nature of the particular medical device. The time required to obtain these foreign approvals to market our products may be longer or shorter than in the United States, and requirements for licensing may differ from FDA requirements.

In order to market our products in the member countries of the European Union, we are required to comply with the medical devices directive and obtain CE mark certification. The CE mark denotes conformity with European standards for safety and allows certified devices to be sold in all European Union countries.

THIRD-PARTY REIMBURSEMENT

In the United States, healthcare providers that purchase medical devices, including our products, generally rely on third-party payers, including Medicare, Medicaid, private health insurance carriers and managed care organizations, to reimburse all or part of the cost and fees associated with the procedures performed using these devices. The commercial success of the ATS heart valve, as well as many of our other products, will depend on

the ability of healthcare providers to obtain adequate reimbursement from third-party payers for the surgical procedures in which our products are used. Third-party payers are increasingly challenging the coverage and pricing of medical products and procedures. Even if a procedure is eligible for reimbursement, the level of reimbursement may not be adequate. In addition, third-party payers may deny reimbursement if they determine that the device used in the treatment was not cost-effective or was used for a non-approved indication.

In international markets, market acceptance of our products also depends in part upon the availability of reimbursement from healthcare payment systems. Reimbursement and healthcare payment systems in international markets vary significantly by country. The main types of healthcare payment systems in international markets are government-sponsored healthcare and private insurance. Countries with government-sponsored healthcare, such as the United Kingdom, have a centralized, nationalized healthcare system. New devices are brought into the system through negotiations between departments at individual hospitals at the time of budgeting. In many of the countries where we market our products, the government sets an upper limit of reimbursement for various valve types. In most foreign countries, there are also private insurance systems that may offer payments for alternative devices.

We have pursued reimbursement for our products internationally through our independent distributors. While the healthcare financing issues in these countries are substantial, we have been able to sell our products to private clinics and nationalized hospitals in each of the countries served by our distributors.

All third-party reimbursement programs, whether government-funded or insured commercially, inside the United States or outside, are developing increasingly sophisticated methods of controlling health care costs through prospective reimbursement and capitation programs, group purchasing, redesign of benefits, second opinions required prior to major surgery, careful review of bills, encouragement of healthier lifestyles and exploration of more cost-effective methods of delivering healthcare. These types of programs can potentially limit the amount that healthcare providers may be willing to pay for medical devices.

PRODUCT LIABILITY AND INSURANCE

Cardiovascular device companies are subject to an inherent risk of product liability and other liability claims in the event that the use of their products results in personal injury. Heart valves are life-sustaining devices, and the failure of any heart valve usually results in the death of the patient. We have not received any reports of mechanical failure of our valves implanted to date. Any product liability claim could subject us to costly litigation, damages and adverse publicity.

We currently maintain a product liability insurance policy with an annual coverage limit of $25 million in the aggregate. We are financially responsible for any uninsured claims or claims which exceed the insurance policy limits. Product liability insurance is expensive for mechanical valves. If insurance becomes completely unavailable, we must either develop a self-insurance program or sell without insurance. The development of a self-insurance program would require significant capital.

EMPLOYEES

As of December 31, 2007, we employed approximately 245 full-time and part-time employees worldwide. Our employees are vital to our success. We believe we have been successful in attracting and retaining qualified personnel. We believe our employee relations are good.

EXECUTIVE OFFICERS OF THE REGISTRANT

Our executive officers are as follows:

Name	Age	Position
Michael D. Dale	48	Chairman, Chief Executive Officer and President
Jeremy J. Curtis	35	Vice President, Worldwide Marketing
Michael R. Kramer	32	Chief Financial Officer
David R. Elizondo	40	Vice President, Research and Development and General Manager, Tissue Operations

Michael D. Dale has served as our Chairman of the Board since April 2003 and our, Chief Executive Officer and President since October 2002. From 1998 to 2002, Mr. Dale was Vice President of Worldwide Sales and Marketing at Endocardial Solutions, Inc., a company that developed and marketed an advanced cardiac mapping and catheter navigation system for the diagnosis and treatment of cardiac arrhythmias. From 1996 to 1998, Mr. Dale was Vice President of Global Sales for Cyberonics, Inc., a neuromodulation medical device company, and additionally was Managing Director of Cyberonics Europe S.A. From 1988 to 1996, Mr. Dale served in several capacities at cardiovascular medical device manufacturer and marketer St. Jude Medical, most recently as the Business Unit Director for St. Jude Medical Europe. Mr. Dale began his medical device career with American Edwards Laboratories where he sold cardiovascular devices from 1983 to 1988. Mr. Dale is on the board of directors of Neuronetics, a world leader in Transcranial Magnetic Stimulation (TMS) Therapy, which involves the use of MRI-strength magnetic fields to stimulate nerve cells in the brain, for the treatment of patients suffering from depression. Mr. Dale also serves on the Advanced Medical Technology Association (AdvaMed) Board of Directors.

Jeremy J. Curtis has served as our Vice President, Worldwide Marketing since joining ATS in June 2007. Prior to joining ATS, Mr. Curtis served in a variety of capacities at GE Healthcare, a medical imaging and diagnostics subsidiary of the General Electric Company, from August 2001 to June 2007. Most recently he served as General Manager, Global Diagnostic Cardiology Marketing, preceded by a role in GE Healthcare Asia as General Manager, Cardiology Systems. From 1997 to 2001, Mr. Curtis served in varying commercial roles at Chiquita Brands International, a global producer, distributor and marketer of fresh produce and consumer package goods. Mr. Curtis' global marketing background includes multiple international assignments including China, Western Europe and Latin America.

Michael R. Kramer has served as our Chief Financial Officer since August 2007. Mr. Kramer joined ATS as our Senior Director of Finance in September 2006 and was appointed Acting Chief Financial Officer in February 2007. During 2006, prior to joining ATS, Mr. Kramer was engaged by ATS as an independent financial consultant. From February 2005 to May 2006, Mr. Kramer served as Controller at CABG Medical, Inc., a cardiovascular device manufacturer. During 2004, Mr. Kramer was a Corporate Finance Manager at Ecolab, Inc., a developer and marketer of products and services to the hospital, foodservice, healthcare and industrial markets. From December 1999 through July 2004, Mr. Kramer worked at Ernst & Young LLP, a global professional services firm, where he served as a manager in the assurance and advisory services practice from September 2002 until July 2004.

David R. Elizondo has served as our Vice President of Research and Development and General Manager, Tissue Operations, since September 2006. From July 2000 to August 2006, Mr. Elizondo served in several capacities at Boston Scientific Corporation, a developer of technologies and products for interventional and surgical procedures, and most recently served as the Director of New Business Development for Boston Scientific's Cardiology Division.

AVAILABLE INFORMATION

Copies of our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished to the Securities and Exchange Commission (the "SEC") pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (the "Exchange Act") are available free of charge through our website (www.atsmedical.com) as soon as reasonably practicable after we electronically file the material with, or furnish it to, the SEC.

ITEM 1A. RISK FACTORS

Our business faces many risks. Any of the risks discussed below could have a material impact on our business, financial condition or operating results

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

Our success will depend, in large part, on the medical community's acceptance of ATS' 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 ATS' products will depend upon our ability to demonstrate the safety and efficacy, advantages, long-term clinical performance and cost-effectiveness of ATS' products as compared to other products. We cannot predict whether the U.S. medical community will accept ATS' products or, if accepted, the extent of its use. Negative publicity resulting from isolated incidents involving ATS' products or other products related to those we sell could have a significant adverse effect on the overall acceptance of our heart valve. If we encounter difficulties developing a market for our products in the United States, we may not be able to increase our revenue enough to achieve profitability, and our business and operating results will be seriously harmed.

We currently rely on the ATS mechanical heart valve as our primary source of revenue. If we are not successful in selling this product, our operating results will be harmed.

Since 2005 we have marketed products other than mechanical heart valves. These products represented approximately 28% of net revenues for the year ended December 31, 2007. However, there can be no assurance that these new products will decrease our dependence on sales of mechanical heart valves. Increasing revenues from new products cannot be guaranteed. Even if we were to develop additional products, regulatory approval would likely be required to sell them. Clinical testing and the approval process itself are very expensive and can take many years. Adverse rulings by regulatory authorities, product liability lawsuits, the failure to achieve widespread U.S. market acceptance, the loss of market acceptance outside of the United States, or other adverse publicity may significantly and adversely affect our sales of the ATS heart valve, and, as a result, would adversely affect our business, financial condition and operating results.

The anticipated benefits associated with our recent acquisitions may not be realized.

We completed the acquisition of 3F in September 2006 and the acquisition of the surgical cryoablation business of CryoCath in June 2007. We expect that these acquisitions will result in several benefits, including, among others, an expanded heart value product line in connection with the acquisition of the tissue heart valve business of 3F, an enhanced owned product portfolio and opportunity to leverage our revenues and margins under our pre-existing distribution and agent agreements in connection with the CryoCath acquisition, and cross-selling opportunities, enhanced technology, cost savings and operating efficiencies in connection with both acquisitions. However, achieving the anticipated benefits of these acquisitions is subject to a number of uncertainties, including whether 3F's development-stage products are ultimately marketable, whether we can commercialize the acquired CryoCath development project related to treatment of arrhythmias on a stand-alone minimally invasive basis, whether we are able to gain regulatory approvals to commercialize products manufactured within our own facility, whether we are able to integrate the businesses in an efficient and effective manner and general competitive factors in the marketplace. Failure to achieve the anticipated benefits of these acquisitions could result in decreases in the amount of expected revenues, increased costs and diversion of management's time and energy, and could materially impact our business, financial condition and operating results.

We may have difficulty integrating recently acquired businesses and may incur substantial costs in connection with the integration process.

Integrating the operations of 3F and the surgical cryoablation business of CryoCath into our existing business will be a complex, time-consuming and expensive process. Before these acquisitions, ATS and 3F, as well as the surgical cryoablation assets of CryoCath, were operated independently, each with its own products, customers, employees, culture and systems. We may experience material unanticipated difficulties or expenses in connection with the integration of these acquired businesses into ATS due to various factors, including:

- our current lack of expertise and experience in manufacturing the CryoCath products because we did not acquire any employees from CryoCath in connection with the acquisition of the surgical cryoablation business of CryoCath;

- costs and delays in implementing manufacturing systems and procedures in connection with the acquisition of the CryoCath assets;
- difficulties in transitioning manufacturing from the CryoCath facilities into our corporate facility;
- difficulties retaining and integrating management and other key employees of 3F in connection with the 3F acquisition;
- challenges associated with integrating the acquired business's products and operations into our facility and business;
- diversion of management resources from the business of the combined company and integration activities;
- reduction or loss of customer sales due to the potential for market confusion, hesitation and delay; and
- difficulty in combining distribution arrangements for the combined company's products and services.

We have limited experience in integrating operations on the scale represented by these acquisitions, and it is not certain that we can successfully integrate the acquired businesses in a timely or efficient manner, or at all, or that any of the anticipated benefits of the acquisitions will be realized. Failure to do so could have a material adverse effect on our business, financial condition and operating results.

In addition, many of the factors listed above are outside our control. The time and expense associated with converting the businesses into a single, combined company may exceed management's expectations and limit or delay the intended benefits of the transaction. To the extent any of these events occur, the benefits of the transaction may be reduced, at least for a period of time. In addition, it is possible that unexpected transaction costs, such as taxes, fees or professional expenses, or unexpected future operating expenses, such as increased personnel costs, as well as other types of unanticipated adverse developments, could have a material adverse effect on our business, financial condition and operating results.

In 2002, we began using a combination of direct sales persons and independent manufacturing representatives to sell our products in the United States. If our U.S. sales strategy is not successful, we will not be able to continue our operations as planned.

The sales approach for the sale of our products in the United States consists primarily of direct salespersons with a few independent manufacturers' representatives. We will need to continue to expend significant funds and management resources to develop and maintain this hybrid sales force. We believe that there is significant competition for sales personnel and independent manufacturing representatives with the advanced sales skills and technical knowledge we need. If we are unable to recruit, retain and motivate qualified personnel and representatives, U.S. sales of our products could be adversely affected. The loss of key salespersons or independent manufacturer's representatives could have a material adverse effect on our sales or potential sales to current customers and prospects serviced by such salespersons or representatives. Further, we cannot assure the successful expansion of our network of independent manufacturer's representatives on terms acceptable to ATS, if at all, or the successful marketing of our products by our hybrid sales force. To the extent we rely on sales through independent manufacturer's representatives, any revenues we receive will depend primarily on the efforts of these parties. We do not control the amount and timing of marketing resources that these third parties devote to our product. If our U.S. sales strategy is not successful, we may be forced to change our U.S. sales strategy again. Any such change could disrupt sales in the United States. Further, any change in our U.S. sales strategy could be expensive and would likely have a material adverse impact on our operating results.

We currently depend on the marketing and sales efforts of international independent distributors.

Our products are sold internationally through independent distributors. The loss of an international distributor could seriously harm our business and operating results if a new distributor could not be found on a timely basis in the relevant geographic market. We do not control the amount and timing of marketing resources that these third parties devote to our product. Furthermore, to the extent we rely on sales through independent distributors, any revenues we receive will depend primarily on the efforts of these parties.

We are dependent upon sales outside the United States, which are subject to a number of risks including a drop in sales due to currency fluctuations.

In 2007, approximately 62% of our net sales were derived outside of the United States. We expect that international sales will account for a substantial majority of our revenue until our products receive wider market acceptance from U.S. customers and until 3F obtains pre-market approval to sell its 3F Aortic Bioprosthesis or other products in the United States. Accordingly, any material decrease in foreign sales may materially and adversely affect our operating results.

We sell in U.S. dollars to most of our customers abroad. An increase in the value of the U.S. dollar in relation to other currencies can and has adversely affected our sales outside of the United States. In prior years, the decrease in sales was due primarily to the change in the value of the U.S. dollar against the Euro, as well as competitor price pressure. Our dependence on sales outside of the United States will continue to expose us to U.S. dollar currency fluctuations for the foreseeable future.

Our future operating results could also be harmed by risks inherent in doing business in international markets, including:

- unforeseen changes in regulatory requirements and government health programs;
- weaker intellectual property rights protection in some countries;
- new export license requirements, changes in tariffs or trade restrictions;
- political and economic instability in our target markets;
- greater difficulty in collecting payments from product sales; and
- lengthy/extended credit terms.

We have a history of net losses. If we do not have net income in the future, we may be unable to continue our operations.

We are not currently profitable and have a very limited history of profitability. We had net losses of approximately $14.4 million for 2005, $27.7 million for 2006 and $23.0 million for 2007. As of December 31, 2007, we had an accumulated deficit of approximately $132.6 million. We expect to incur significant expenses over the next several years as we continue to devote substantial resources to the commercialization and marketing of the ATS heart valve in the United States. We will not generate net income unless we are able to significantly increase revenue from U.S. sales. If we continue to sustain losses, we may not be able to continue our business as planned.

In addition, if the benefits of the merger with 3F and our acquisition of the surgical cryoablation assets of CryoCath do not exceed the associated costs, the combined company could be adversely affected by incurring additional or even increased losses from its operations. Our ability to succeed after the merger with 3F and the acquisition of the surgical cryoablation assets of CryoCath depends on making our combined operations profitable through increased revenue and reduced expenses for the combined company. If we fail to make our combined operations profitable through increased revenue and decreased expenses, it would harm our business, financial condition and operating results.

Purchase accounting treatment of the merger with 3F and acquisition of the surgical cryoablation assets of CryoCath could result in net losses for the foreseeable future.

We have accounted for the merger with 3F and purchase of the surgical cryoablation assets of CryoCath using the purchase method of accounting. For the 3F acquisition, the estimated market value of shares of our common stock issued in the merger and the amount of the merger transaction costs were recorded as the cost of acquiring 3F. For the acquisition of the surgical cryoablation assets of CryoCath, the initial purchase price recorded was equal to the initial cash consideration paid to CryoCath, plus the amount of transaction costs and the present value of the cash payment due to CryoCath two years from closing. In each case, the cost has been allocated to the individual assets acquired and liabilities assumed, including various identifiable intangible assets such as acquired technology, acquired trademarks and tradenames, based on their estimated fair values at the date of acquisition. The excess of the purchase price over the fair market value of the net assets has been allocated as goodwill. The amount of the purchase price allocated to goodwill and the other intangible assets in connection with the acquisition of 3F is approximately $12.3 million. The preliminary amount of the initial purchase price currently

allocated to goodwill and other intangible assets in connection with the purchase of the surgical cryoablation assets of CryoCath is approximately $21.8 million. Our estimates are based upon currently available information and assumptions that we believe are reasonable. We continue the process of gathering information to finalize the valuation of certain assets in the CryoCath asset acquisition, primarily the valuation of acquired intangible assets. However, there can be no assurance that the actual useful lives will not differ significantly from the current estimates. The amortization of other intangible assets could result in net losses for ATS for the foreseeable future, which could have a material adverse effect on the market value of our common stock.

If we do not receive shareholder approval to issue an equity warrant to Alta Partners VIII, L.P. ("Alta") in exchange for their cash warrant, our cash balances may be insufficient to settle the cash liability upon exercise, we may need to raise additional equity or incur debt to settle this liability and our earnings may be adversely affected.

In connection with our June 2007 equity financing, we issued a common stock warrant to Alta on 1,960,000 shares of our common stock. The form of warrant issued to Alta is that of a cash warrant. If we do not receive shareholder approval to issue shares of common stock upon Alta's exercise of its warrants, then the warrants will become exercisable beginning on June 28, 2008, and the warrant holder will be entitled to receive, upon exercise of the warrants, cash from ATS in an amount equal to the difference between the then-current fair market value of the shares of our common stock underlying the warrants and the aggregate exercise price of the warrants. If we receive shareholder approval to issue shares of common stock upon exercise of the warrants, then the warrants will become exercisable upon receipt of such shareholder approval, and the holder will be entitled to receive shares of common stock upon exercise of the warrants. If we are unable to obtain shareholder approval, we may need to raise additional debt or equity to settle this liability. In addition, generally accepted accounting principles in the United States require us to mark-to-market the value of cash warrants on a periodic basis until we obtain shareholder approval to issue shares of our common stock upon exercise of such warrants. As a result, until we receive shareholder approval, which cannot be assured, we will continue to recognize changes in the fair value of the warrants in our profit and loss statement during each reporting period, which may have an adverse impact on our earnings.

We have a history of regularly raising funds and incurring debt to fund net losses. If our current cash and investment balances are inadequate to carry us to profitability, we may need to raise equity or incur debt in the future.

During the last several years, we have completed financings to fund our operations. If our future operations require greater cash than our current balances, we would again be required to raise equity or issue debt. Furthermore, there may be delays in obtaining necessary governmental approvals of our products or introducing products to market or other events that may cause actual cash requirements to exceed those for which we have budgeted. In such event, we would need additional financing. If we were unable to raise these funds, we may not be able to continue our business as planned.

The market for prosthetic heart valves is highly competitive, and a number of our competitors are larger and have more financial resources. If we do not compete effectively, our business will be harmed.

The market for prosthetic heart valves is highly competitive. We expect that competition will intensify as additional companies enter the market or modify their existing products to compete directly with us. Our primary competitor in mechanical heart valves, St. Jude Medical, Inc., currently controls approximately 50% of the worldwide market. Edwards Lifesciences PVT, Inc., our primary competitor in the tissue heart valve market, currently controls approximately 50% of the worldwide market. Many of our competitors have long-standing FDA approval for their valves and extensive clinical data demonstrating the performance of their valves. In addition, they have greater financial, manufacturing, marketing and research and development capabilities than we have. For example, many of our competitors have the ability, due to their internal carbon manufacturing facilities and economies of scale, to manufacture their heart valves at a lower cost than we can manufacture our ATS heart valve. Our primary competitor has recently used price as a method to compete in several international markets. If heart valve prices decline significantly, we might not be able to compete successfully, which would harm our business, financial condition and operating results.

Our future results will be harmed if the use of mechanical heart valves declines or if our tissue heart valves cannot be successfully marketed.

Our business could suffer if the use of mechanical heart valves declines. Historically, mechanical heart valves have accounted for over two-thirds of all heart valve replacements. Recently there has been an increase in the use of tissue valves. We estimate that mechanical heart valves are currently being used in 20% to 65% of all heart valve replacements, depending on the geographic market, down from 65% to 75% roughly ten years ago. We believe the tissue manufacturers' claims of improvements in tissue valve longevity and an increase in the average age of valve patients have contributed to the recent increase in the use of tissue valves. In addition, there can be no guarantee that we will be able to successfully market and sell our tissue heart valves or that our tissue heart valves will be approved or gain market acceptance.

Our business may be adversely affected if we are unable to maintain our strategic distribution arrangements.

In 2007, revenues from non-mechanical heart valve products increased to 28% of total revenue from none in 2004. Some of our distributed products contain performance criteria which we must obtain to retain our rights under these arrangements. Additionally, these arrangements provide certain circumstances under which our rights may be terminated. If we are unable to maintain these arrangements, our business, financial condition and operating results may be adversely affected.

We ultimately may experience a delay in introducing, or may not successfully complete development of, products that are currently under development, resulting in harm to our business.

We are in the process of developing certain products, including, but not limited to, the Enable and Entrata tissue heart valve products. The Enable product is currently in the early phases of clinical trials, and the Entrata product is still under development. Successfully completing the development of these products and technologies presents substantial technical, medical and engineering challenges, as well as regulatory hurdles. In 2006, ongoing clinical trial results in Europe resulted in our undertaking a review of the Enable valve cuff design. We may not successfully complete the development of these products, or these products may fail to work in the manner intended. If we are unable to successfully develop the products that are currently under development, we may suffer financial difficulties, which may have a material adverse effect on our business, financial condition and operating results.

New products or technologies developed by others could render our product obsolete.

The medical device industry is characterized by significant technological advances. Several companies are developing new prosthetic heart valves based on new or potentially improved technologies. Significant advances are also being made in surgical procedures, which may delay the need for replacement heart valves. A new product or technology may emerge that renders the ATS heart valve noncompetitive or obsolete. This could materially harm our operating results or force us to cease doing business altogether.

The acquisition of the surgical cryoablation assets of CryoCath may result in a loss of customers and suppliers.

Some customers may seek alternative sources of products and/or services after the CryoCath asset acquisition due to, among other reasons, a desire not to do business with the combined company or perceived concerns that the combined company may not continue to support and develop certain product lines. The combined company could experience some customer attrition after the acquisition. Difficulties in combining operations also could result in the loss of providers and potential disputes or litigation with customers, providers or others.

We license patented technology and other proprietary rights from CarboMedics. If these agreements are breached or terminated, our right to manufacture the ATS mechanical heart valve could be terminated.

Under our carbon technology agreement with CarboMedics, we have obtained a license to use CarboMedics' pyrolytic carbon technology to manufacture components for the ATS heart valve. If this agreement is breached or terminated, we would lose our right to manufacture components for the ATS heart valve. If our inventory is exhausted and we do not have any other sources of carbon components, we would be forced to cease selling mechanical heart valves.

A delay or interruption in our manufacturing of pyrolytic carbon components could delay product delivery or force us to cease operations.

Although we anticipate that our manufacturing capacity will be sufficient to meet our current and foreseeable carbon component needs, if our inventory is exhausted and we are unable to manufacture carbon components, it is unlikely that we will be able to obtain the necessary carbon components from any other source. If we are unable to obtain these carbon components from other sources, we could be forced to reduce or cease operations.

Because we have limited manufacturing experience with some of our products, we may not realize the expected cost savings related to manufacturing our own products. In addition, we could experience production delays and significant additional costs.

Our tissue valve manufacturing efforts to date have consisted primarily of limited quantities of products for research and development, clinical trials and commercial sale outside the United States. Under our manufacturing transition services agreement with CryoCath, we will purchase products from CryoCath for the surgical cryoablation business during the manufacturing transition period. We cannot be certain that we will be able to manufacture commercial quantities of tissue heart valves or develop internal manufacturing capabilities in connection with the acquisition of the CryoCath assets in a cost-effective manner. We have limited experience manufacturing tissue heart valves and no experience manufacturing products for the surgical cryoablation business, and our inability to manufacture these products in a cost-effective manner could adversely affect our business and results of operations. In addition, in the future as we continue to increase production, we may encounter difficulties in maintaining and expanding our manufacturing, including problems involving:

- production yields;
- quality control;
- per unit manufacturing costs;
- shortages of qualified personnel; and
- compliance with FDA and international regulations and requirements regarding good manufacturing practices.

Difficulties encountered by us in establishing or maintaining a commercial-scale manufacturing facility may limit our ability to manufacture our cryoablation products and therefore could seriously harm our business, financial condition and operating results.

We are reliant upon CryoCath for the supply of products of our surgical cryoablation business.

We currently purchase all of the products of our surgical cryoablation business from CryoCath. We are in the process of establishing and validating manufacture of these products in our own facility. However, if we are not successful in establishing our own manufacturing capabilities for these products, we would continue to be reliant on CryoCath for the supply of surgical cryoablation products. Any adverse changes in the operations, employee relations, solvency or compliance with laws and regulations by CryoCath may have a material adverse impact on the supply of products we purchase from them. Additionally, CryoCath manufactures their own products for commercial sale and our products are subject to production and scheduling constraints that may be the result of growth of their core business. If CryoCath is unable to provide product quantities in quantities sufficient to meet our demand our business, earnings and financial position may be materially harmed.

Our business could be seriously harmed if third-party payers do not reimburse the costs for our products.

Our ability to successfully commercialize the ATS mechanical heart valve, our tissue heart valves, surgical cryoablation devices and other products depends on the extent to which reimbursement for the cost of our product and the related surgical procedure is available from third-party payers, such as governmental programs, private insurance plans and managed care organizations. Third-party payers are increasingly challenging the pricing of medical products and procedures that they consider not to be cost-effective or are used for a non-approved indication. The failure by physicians, hospitals and other users of our products to obtain sufficient reimbursement from third-party payers would seriously harm our business, financial condition and operating results.

In recent years, there have been numerous proposals to change the health care system in the United States. Some of these proposals have included measures that would limit or eliminate payment for medical procedures or treatments. In addition, government and private third-party payers are increasingly attempting to contain health care costs by limiting both the coverage and the level of reimbursement. In international markets, reimbursement

and health care payment systems vary significantly by country. Furthermore, we have encountered price resistance from government-administered health programs. Significant changes in the health care system in the United States or elsewhere, including changes resulting from adverse trends in third-party reimbursement programs, could have a material adverse effect on our business, financial condition and operating results.

We may face product liability claims, which could result in losses in excess of our insurance coverage and which could negatively affect our ability to attract and retain customers.

The manufacture and sale of mechanical heart valves and tissue heart valves entails significant risk of product liability claims and product recalls. Both mechanical heart valves, tissue heart valves and valve repair products are life-sustaining devices, and the failure of any valve or repair product usually results in the patient's death or need for re-operation. A product liability claim or product recall, regardless of the ultimate outcome, could require us to spend significant time and money in litigation or to pay significant damages and could seriously harm our business. We currently maintain product liability insurance coverage in an aggregate amount of $25 million. However, we cannot be assured that our current insurance coverage is adequate to cover the costs of any product liability claims made against us. Product liability insurance is expensive and does not cover the costs of a product recall. In the future, product liability insurance may not be available at satisfactory rates or in adequate amounts. A product liability claim or product recall could also materially and adversely affect our ability to attract and retain customers.

Our business would be adversely affected if we are not able to protect our intellectual property rights.

Our success depends in part on our ability to maintain and enforce our patents and other proprietary rights. We rely on a combination of patents, trade secrets, know-how and confidentiality agreements to protect the proprietary aspects of our technology. These measures afford only limited protection, and competitors may gain access to our intellectual property and proprietary information. The patent positions of medical device companies are generally uncertain and involve complex legal and technical issues. Litigation may be necessary to enforce our intellectual property rights, to protect our trade secrets and to determine the validity and scope of our proprietary rights. Any litigation could be costly and divert our attention from the growth of the business. We cannot assure you that our patents and other proprietary rights will not be successfully challenged, or that others will not independently develop substantially equivalent information and technology or otherwise gain access to our proprietary technology.

We may be sued by third parties claiming that our products infringe on their intellectual property rights. Any such suits could result in significant litigation or licensing expenses or we might be prevented from selling our product.

We may be exposed to future litigation by third parties based on intellectual property infringement claims. Any claims or litigation against us, regardless of the merits, could result in substantial costs and could harm our business. In addition, intellectual property litigation or claims could force us to:

- cease manufacturing and selling our product, which would seriously harm us;
- obtain a license from the holder of the infringed intellectual property right, which license may not be available on reasonable terms, if at all; or
- redesign our product, which could be costly and time-consuming.

We may encounter litigation that could have a material impact on our business.

In November 2006, CarboMedics filed a complaint against ATS alleging that we have breached certain contractual obligations, including an alleged obligation to purchase $22 million of carbon components under a long-term supply agreement with CarboMedics. The complaint initially sought specific enforcement of the supply agreement, revocation of certain intellectual property rights purchased by ATS from CarboMedics, and monetary damages in excess of $75,000. In May 2007, CarboMedics withdrew its request for specific performance of the contract. It has also revised its damages estimate to $13.6 million before accounting for net present value adjustments, interest, attorney's fees and costs. We believe that the complaint filed by CarboMedics is without merit. We have filed our answer to the complaint, including certain counterclaims against CarboMedics. A trial date has been set for September 2008. If we are ultimately found to be in breach of the terms of our supply agreement with CarboMedics, we could be required to pay damages that would materially and adversely affect our financial condition.

In addition to the CarboMedics litigation described above, we may be subject to product liability claims, intellectual property infringement claims or other lawsuits, proceedings and claims arising in the ordinary course of business or otherwise. Although we do not believe that any lawsuits, claims or proceedings arising in the ordinary course of business will have a material adverse impact on our business, operating results or financial condition, it is possible that unfavorable resolutions of any lawsuits, claims or proceedings could have an adverse effect on our business, results of operation or financial condition because of the uncertainty inherent in litigation.

We are subject to extensive governmental regulation, which is costly, time consuming and can subject us to unanticipated delays or could ultimately preclude us from marketing and selling our products.

Our heart valves, surgical cryoablation products and other products and our manufacturing activities are subject to extensive regulation by a number of governmental agencies, including the FDA and comparable international agencies, as well as other federal, state, local and international authorities. We are required to:

- obtain the approval of the FDA or international regulatory authorities where our products are not yet marketed;
- after obtaining approval or clearance of the FDA or international regulatory authorities, maintain the approval of the FDA and international regulatory authorities to continue selling and manufacturing our heart valves;
- satisfy content requirements for all of our labeling, sales and promotional materials;
- comply with manufacturing and reporting requirements; and
- undergo rigorous inspections by these agencies.

Compliance with the regulations of these governmental authorities may delay or prevent us from introducing any new or improved products. The governmental authorities in charge of making and implementing these laws or related regulations may change the laws, impose additional restrictions, or adopt interpretations of existing laws or regulations that could have a material adverse effect on us. Violations of these laws or regulatory requirements may result in fines, marketing restrictions, product recall, withdrawal of approvals and civil and criminal penalties. We also may incur substantial costs associated with complying and overseeing compliance with the laws and regulations of these governmental authorities.

We ultimately may not be able to obtain the necessary governmental approvals or clearances in the United States or other jurisdictions, including FDA and CE approvals and clearances, for products that are now under development, including our 3F Aortic Bioprosthesis, Enable and Entrata products and surgical cryoablation products designed for standalone minimally invasive procedures. Obtaining these governmental approvals or clearances is uncertain, and the regulatory approval process is likely to be time-consuming and expensive. If we are unable to obtain such governmental approvals or clearances, then our ability to market and sell products currently under development may be delayed or may never occur. Our potential inability to market and sell our products currently under development, together with the potential expenses associated with obtaining the necessary governmental approvals or clearances, may cause us to suffer financial difficulties, which could have a material adverse effect on our business, financial condition and prospects.

The price of our common stock has been volatile, which may result in losses to investors.

Historically, the market price of our common stock has fluctuated over a wide range and it is likely that the price of our common stock will fluctuate in the future. The market price of our common stock could be impacted by the following:

- the success of our management in operating ATS effectively;
- the failure of our heart valves to gain market acceptance in the United States;
- announcements of technical innovations or new products by our competitors;
- the status of component supply arrangements;
- changes in reimbursement policies;
- government regulation;
- developments in patent or other proprietary rights;
- public concern as to the safety and efficacy of products developed by us or others; and

- general market conditions.

In addition, due to one or more of the foregoing factors, in future years our operating results may fall below the expectations of securities analysts and investors. In that event, the market price of our common stock could be materially and adversely affected. Finally, in recent years the stock market has experienced extreme price and volume fluctuations. This volatility has had a significant effect on the market prices of securities issued by many companies for reasons unrelated to their operating performance. These broad market fluctuations may materially adversely affect our stock price, regardless of our operating results.

Our charter documents and Minnesota law may discourage and could delay or prevent a takeover of our company.

Provisions of our articles of incorporation, bylaws and Minnesota law could make it more difficult for a third party to acquire us, even if doing so would be beneficial to our shareholders. These provisions include the following:

- No cumulative voting by shareholders for directors;
- The ability of our Board of Directors to control its size, to create new directorships and to fill vacancies;
- The ability of our Board of Directors, without shareholder approval, to issue preferred stock, which may have rights and preferences that are superior to our common stock;
- The ability of our Board of Directors to amend the bylaws; and
- Restrictions under Minnesota law regarding mergers or other business combinations between us and any holder of 10% or more of our outstanding common stock.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not Applicable.

ITEM 2. PROPERTIES

We lease approximately 62,000 square feet of space in two adjacent buildings in Plymouth, Minnesota. The first building lease, covering approximately 39,000 square feet, expires on July 31, 2010 and is used for administrative, production and engineering purposes. The lease on the second building (23,000 square feet) also expires July 31, 2010 and is used for carbon manufacturing. Both of our Minnesota leases carry a three-year renewal option. We also lease approximately 16,000 square feet of space in Lake Forest, California. This lease expires on September 30, 2009 and is used for research and development and manufacturing purposes. Outside the United States, we lease four sales and marketing offices in China, France, Germany, and Austria. We believe that our facilities are adequate for our current needs.

ITEM 3. LEGAL PROCEEDINGS

Abbey Litigation

On January 23, 2006, following execution of the Merger Agreement between the Company and 3F, 3F was informed of a summons and complaint dated January 19, 2006, which was filed in the U.S. District Court in the Southern District of New York by Arthur N. Abbey ("Abbey") against 3F Partners Limited Partnership II (a major stockholder of 3F, "3F Partners II"), Theodore C. Skokos (the then chairman of the board and a stockholder of 3F), 3F Management II, LLC (the general partner of 3F Partners II), and 3F (collectively, the "Defendants") (the "Abbey I Litigation"). The summons and complaint alleges that the Defendants committed fraud under federal securities laws, common law fraud and negligent misrepresentation in connection with the purchase by Abbey of certain securities of 3F Partners II. In particular, Abbey claims that the Defendants induced Abbey to invest $4 million in 3F Partners II, which, in turn, invested $6 million in certain preferred stock of 3F, by allegedly causing Abbey to believe, among other things, that such investment would be short-term. Pursuant to the complaint, Abbey is seeking rescission of his purchase of his limited partnership interest in 3F Partners II and return of the amount paid therefore (together with pre-and post-judgment interest), compensatory damages for the alleged lost principal of his investment (together with interest thereon and additional general, consequential and incidental damages), general damages for all alleged injuries resulting from the alleged fraud in an amount to be determined

at trial and such other legal and equitable relief as the court may deem just and proper. Abbey did not purchase any securities directly from 3F and is not a stockholder of 3F. On March 23, 2006, 3F filed a motion to dismiss the complaint. Under the Private Securities Litigation Reform Act, no discovery will be permitted until the judge rules upon the motion to dismiss. On May 15, 2006, 3F filed and served a reply memorandum of law in further support of its motion to dismiss Abbey's complaint with prejudice. On August 6, 2007, the Court granted 3F's motion to dismiss the complaint based on plaintiff's failure to state a claim upon which relief may be granted and the case was closed. On August 30, 2007, Abbey filed a Notice of Appeal with the United States Court of Appeals for the Second Circuit seeking to reverse the District Court's August 6, 2007 Order dismissing the case. The appeal was fully submitted on January 3, 2008. None of the parties have requested oral argument.

On or about June 14, 2006, Abbey commenced a second civil action in the Court of Chancery in the State of Delaware by serving 3F with a complaint naming both 3F and Mr. Skokos as defendants (the "Abbey II Litigation"). The complaint alleges, among other things, fraud and breach of fiduciary duties in connection with the purchase by Abbey of his partnership interest in 3F Partners II. The Delaware action seeks: (1) a declaration that (a) for purposes of the merger, Abbey was a record stockholder of 3F and was thus entitled to withhold his consent to the merger and seek appraisal rights after the merger was consummated and (b) the irrevocable stockholder consent submitted by 3F Partners II to approve the merger be voided as unenforceable; and (2) damages based upon allegations that 3F aided and abetted Mr. Skokos in breaching Mr. Skokos's fiduciary duties of loyalty and faith to Abbey. On July 17, 2006, 3F filed a motion to dismiss the complaint in the Abbey II Litigation, or, alternatively, to stay the action pending adjudication of the Abbey I Litigation. On October 10, 2006, the Delaware Chancery Court entered an order staying the Delaware action pending the outcome of the Abbey I litigation. On or about August 17, 2007, the parties informed the Delaware Chancery Court that they would consent to the continued stay of the Delaware action pending the outcome of Abbey's appeal of the Abbey I Litigation.

3F has been notified by its director and officer insurance carrier that such carrier will defend and cover all defense costs as to 3F and Mr. Skokos in the Abbey I Litigation and Abbey II Litigation, subject to policy terms and full reservation of rights. In addition, under the merger agreement, 3F and the 3F stockholder representative have agreed that the Abbey I Litigation and Abbey II Litigation are matters for which express indemnification is provided. As a result, the escrow shares and milestone shares, if any, may be used by ATS to satisfy, in part, ATS's set-off rights and indemnification claims for damages and losses incurred by 3F or ATS, and their directors, officers and affiliates, that are not otherwise covered by applicable insurance arising from the Abbey I Litigation and Abbey II Litigation. See Note 2 of "Notes to Consolidated Financial Statements" in this Form 10-K for a description of the escrow and milestone shares. The Company believes the Abbey I Litigation and Abbey II Litigation will not result in a material impact on the Company's financial position or operating results.

CarboMedics Litigation

On November 22, 2006, CarboMedics filed a complaint against ATS in the U.S. District Court in the District of Minnesota. The complaint alleges that the Company has breached certain contractual obligations, including an alleged obligation to purchase $22 million of mechanical heart valve carbon components under a long-term supply agreement with CarboMedics, which obligation CarboMedics contends had been scheduled to re-commence in 2007.

CarboMedics initially sought specific performance and claimed damages of approximately $20 million. We believe the complaint filed by CarboMedics is without merit, that CarboMedics has repudiated and breached the long-term supply agreement, and that ATS may have affirmative claims against CarboMedics. On February 16, 2007, we filed our answer and counterclaim to the complaint. On May 16, 2007, CarboMedics filed an amended complaint withdrawing its request for specific performance. CarboMedics has also revised its damages estimate to $13.6 million before accounting for net present value adjustments, interest, attorney's fees, and costs. The case is now in the final stages of discovery and has been scheduled for trial in September 2008.

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

Not Applicable.

PART II

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

Market Information

Our common stock is traded on the NASDAQ Global Market under the symbol "ATSI." The following table sets forth, for the periods indicated, the high and low closing sales prices per share of our common stock as reported on the NASDAQ Global Market. These prices do not include adjustments for retail mark-ups, mark-downs, or commissions.

Fiscal Year 2006:	High	Low
First Quarter	$3.15	$2.46
Second Quarter	$3.00	$2.27
Third Quarter	$2.80	$2.06
Fourth Quarter	$2.63	$2.05

Fiscal Year 2007:	High	Low
First Quarter	$2.39	$2.05
Second Quarter	$2.08	$1.54
Third Quarter	$2.01	$1.54
Fourth Quarter	$2.21	$1.57

Holders

As of March 4, 2008, we had approximately 494 holders of record of our common stock.

Dividends

We are currently restricted from declaring or paying dividends on our common stock under our loan agreements with Silicon Valley Bank. We have never declared or paid cash dividends in the past and intend to retain all future earnings for the operation and expansion of our business.

Repurchases of Common Stock

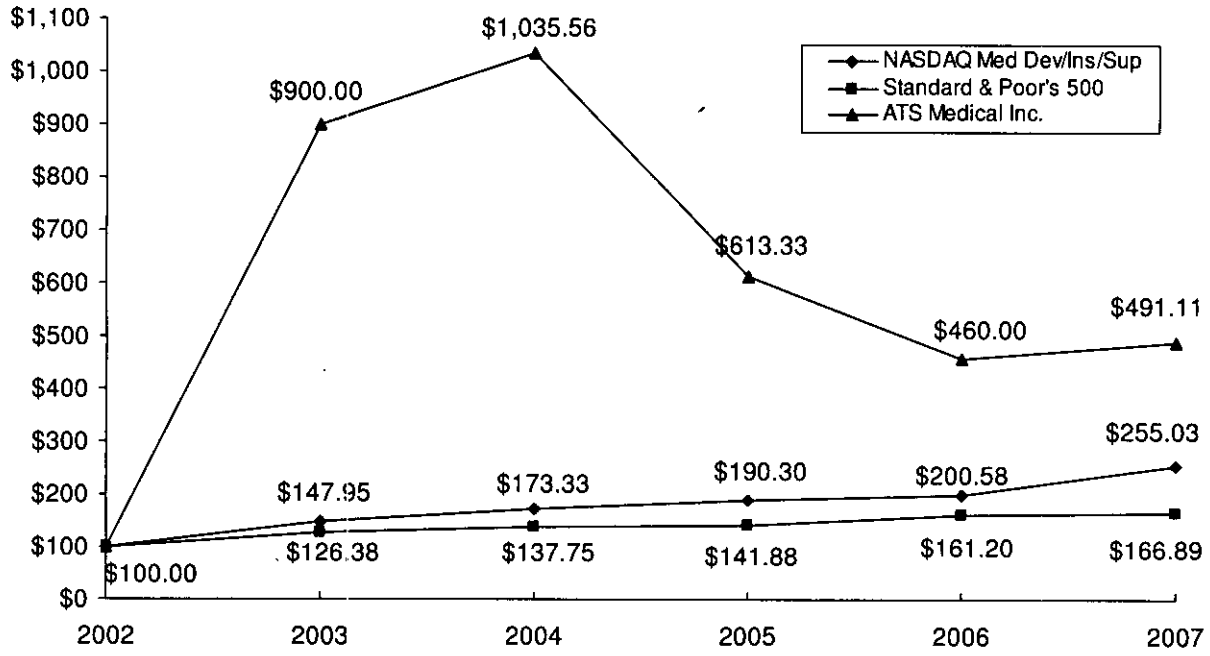
We did not repurchase any of our securities during the fourth quarter of 2007.

Sales of Unregistered Securities

We had no sales of unregistered securities during 2007 that have not been previously disclosed in a Current Report on Form 8-K or Quarterly Report on Form 10-Q.

Performance Graph

The graph below compares the cumulative total shareholder return on our common stock since December 31, 2002 with the cumulative return of the Standard & Poor's 500 Stock Index and the NASDAQ Medical Devices, Instruments and Supplies Index over the same period (assuming the investment of $100 in each vehicle on December 31, 2002 and reinvestment of all dividends).



Name	2002	2003	2004	2005	2006	2007
NASDAQ Medical Dev/Ins/Sup	$100.00	$147.95	$ 173.33	$190.30	$200.58	$255.03
Standard & Poor's 500 Stock Index	100.00	126.38	137.75	141.88	161.20	166.89
ATS Medical, Inc.	100.00	900.00	1,035.56	613.33	460.00	491.11

ITEM 6. SELECTED FINANCIAL DATA

(in thousands, except per share data)	Year Ended December 31, 2007	2006	2005	2004	2003
Statement of Operations Data:					
Net sales	$49,587	$40,449	$34,636	$28,015	$18,484
Cost of sales	21,238	19,568	22,828	21,227	17,632
Gross profit	28,239	20,881	11,808	6,788	852
Operating expenses:					
Sales and marketing	24,633	21,008	18,948	16,520	10,180
Research and development	7,546	3,381	1,733	1,011	1,764
Acquired in-process research and development	3,500	14,400	-	-	-
General and administrative	10,417	8,786	7,314	5,954	4,350
Amortization of intangibles	2,516	106	-	-	-
Intangible asset impairment	755	-	-	-	-
Distributor termination expense	-	733	-	-	-
Gain on extinguishment of debt	-	-	-	-	(2,575)
Total operating expenses	49,367	48,414	27,995	23,485	13,719
Operating loss	(21,128)	(27,533)	(16,187)	(16,697)	(12,867)
Interest income (expense)	(1,822)	(1,669)	(338)	54	(425)
Other income, net	61	1,528	2,131	-	-
Net loss before income taxes	(22,889)	(27,674)	(14,394)	(16,643)	(13,292)
Income tax expense	119	-	-	-	-
Net loss	($23,008)	($27,674)	($14,394)	($16,643)	($13,292)
Net loss per share:					
Basic	($0.44)	($0.83)	($0.46)	($0.58)	($0.55)
Diluted	($0.44)	($0.83)	($0.46)	($0.58)	($0.55)
Weighted average number of shares outstanding:					
Basic	52,589	33,537	31,009	28,856	24,076
Diluted	52,589	33,537	31,009	28,856	24,076

(in thousands)	As of December 31, 2007	2006	2005	2004	2003
Balance Sheet Data:					
Cash, cash equivalents and short-term investments	$ 14,669	$10,704	$21,709	$15,994	$ 8,475
Working capital	30,216	32,976	46,417	41,459	31,275
Total assets	105,897	85,840	85,443	79,051	76,134
Long-term liabilities, excluding current maturities	25,416	18,588	19,679	1,826	307
Shareholders' equity	64,956	57,890	57,529	69,441	72,803

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

Executive Overview

ATS Medical, Inc. (hereinafter the "Company", "ATS", "we", "us" or "our") develops, manufactures, and markets medical devices. Our primary interest lies with devices used by cardiovascular surgeons in the cardiac surgery operating theater. Currently, we participate in the markets for mechanical bileaflet replacement heart valves, tissue heart valves, valve repair products, the surgical treatment of atrial fibrillation, and surgical tools and accessories.

In 1990, we licensed a patented and partially developed valve from CarboMedics. Under the terms of the license, we would complete the development of the valve and agreed to purchase carbon components from CarboMedics. As a result, we now hold an exclusive, royalty-free, worldwide license to an open pivot, bileaflet mechanical heart valve design owned by CarboMedics. In addition, we have an exclusive, worldwide right and license to use CarboMedics' pyrolytic carbon technology to manufacture components for the ATS mechanical heart valve.

We commenced selling the ATS mechanical heart valve in international markets in 1992. In late 2000, we received FDA approval to sell the ATS Open Pivot® mechanical heart valve and commenced sales and marketing of our valve in the United States. During 2002, we reorganized the Company and started the process of rebuilding our sales and marketing teams, both in the United States and internationally. This rebuilding has been a significant factor in our operating expense levels during the last five years. During 2004 and 2005, we developed and implemented a plan to ramp-up our own manufacturing facility for pyrolytic carbon. By the end of 2005, this process was substantially complete.

During 2004 we made our first investments outside the mechanical heart valve market. We completed a global partnership agreement with CryoCath to market CryoCath's surgical cryotherapy products for the ablation of cardiac arrhythmias. CryoCath developed a portfolio of novel products marketed under the SurgiFrost® and FrostByte® trade names which are used by cardiac surgeons to treat cardiac arrhythmias. Treatment is accomplished through the creation of an intricate pattern of lesions on the surface of the heart to block inappropriate electrical conduction circuits which cause the heart to be less effective when pumping blood and can lead to stroke, heart failure and death. Unique to this technology is the use of cryothermy (cold) to create lesions. The agreement with CryoCath has resulted in revenues for ATS since 2005.

During 2005 we continued to develop our business outside the mechanical heart valve market. We entered into an exclusive development, supply and distribution agreement with GBI, under which GBI will develop, supply, and manufacture cardiac surgical products to include annuloplasty repair rings, c-rings and accessories, and we will have exclusive worldwide rights to market and sell such products. Our agreement with GBI produced revenues for us in both 2006 and 2007. We also entered into a marketing services agreement with Regeneration Technologies, Inc. – Cardiovascular ("RTI-CV"). Under the terms of the agreement, RTI-CV appointed us as its exclusive marketing services representative to promote, market and solicit orders for RTI-CV's processed cardiovascular allograft tissue from doctors, hospitals, clinics and patients throughout North America. The agreement with RTI-CV produced revenues for us since 2005. However, the cardiovascular tissue processing business of RTI-CV was sold during 2006 and RTI-CV is discontinuing its cardiovascular tissue processing operations. As a result, our distribution agreement with RTI-CV terminated at the end of 2007.

In 2006 we completed the acquisition of all the voting and non-voting stock of 3F, a privately-held medical device company specializing in manufacturing tissue heart valves. The acquisition was consummated pursuant to an agreement and plan of merger, as amended ("the Merger Agreement"). Under the terms of the Merger Agreement, upon closing, we paid each 3F stockholder its pro-rata portion of an initial payment of 9 million shares of our common stock, subject to certain adjustments. In addition to the initial closing payment, we are obligated to make additional contingent payments to 3F stockholders of up to 10 million shares of our common stock with shares issuable upon obtaining each of the CE mark and FDA approval of certain key products on or prior to December 31, 2013. Milestone share payments may be accelerated upon completion of certain transactions involving these key products. The first generation tissue valve, the ATS 3F® Aortic Bioprosthesis, has received CE mark and is available for sale in Europe and certain other international markets. We expect FDA approval of this product during the second half of 2008.

Also in 2006, we entered into an exclusive distribution agreement with Novare Surgical Systems, Inc. ("Novare"). Novare is the owner of the Enclose II® cardiac anastomosis assist device, which is a device used by cardiac

surgeons to attach a bypass vessel to the aorta during coronary artery bypass graft surgery. Under the terms of the agreement, we hold the exclusive right to market, sell and distribute the Enclose II product in the United States, Germany, France and the United Kingdom. We agreed to pay to Novare a transfer price for each box of Enclose II product we purchase. We are also required to purchase an annual minimum amount of Enclose II product, which increases 15% each year.

In June 2007 we acquired the assets of the surgical cryoablation business of CryoCath. The assets acquired include the SurgiFrost, FrostByte, and SurgiFrost XL family of products for which we served as CryoCath's exclusive agent in the United States and distributor in certain international markets. Under the acquisition agreements, we paid CryoCath $22.0 million upon closing of the transaction (reduced by $0.9 million subsequent to closing), and will pay CryoCath $2.0 million upon the achievement of certain manufacturing transition milestones, $2.0 million two years after closing and up to $4.0 million in contingent payments based on future sales of Surgifrost XL, an FDA cleared and CE Marked product designed to enable less-evasive ablations. Surgifrost XL was developed to enable a minimally-invasive beating heart solution for the treatment of cardiac arrhythmias, including atrial fibrillation without concomitant cardiac surgery. This technology enables us to leverage our current operating infrastructure and allows us to better address the rapidly growing $1.5 billion cardiac arrhythmia market. The transaction was financed with part of the proceeds of an $8.6 million senior secured term loan from SVB Silicon Valley Bank and the private placement of 9,800,000 shares of our common stock at a purchase price of $1.65 per share to Alta, a life sciences venture capital firm. Alta also received a warrant to purchase 1,960,000 shares of our common stock at $1.65 per share.

Critical Accounting Policies and Estimates

We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. This 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 these financial statements requires us to make estimates and judgments that affect (1) the reported amounts of assets, liabilities, revenues, and expenses and (2) the related disclosure of contingent liabilities. At each balance sheet date, we evaluate our estimates, including but not limited to, those related to accounts receivable, inventories, long-lived assets and income taxes. The critical accounting policies that are most important in fully understanding and evaluating the financial condition and results of operations are discussed below.

Revenue Recognition Policy. A significant portion of our revenue in the United States and in our direct European sales operations is generated from consigned inventory maintained at hospitals or with field representatives. In these situations, revenue is recognized at the time that the product has been implanted or used. In all other instances, revenue is recognized at the time product is shipped. Certain independent distributors in select international markets receive rebates against invoiced sales amounts. In these situations, we accrue for these rebates at the time of the original sale. These accrued rebates were not significant at either December 31, 2007 or December 31, 2006. These rebates are treated as a reduction of revenue.

The Company includes shipping and handling costs, net of shipping charges invoiced to customers, in cost of goods sold.

Allowance for Doubtful Accounts. We maintain an allowance for doubtful accounts that is calculated using subjective judgments and estimates to establish this valuation account. Our distribution in international markets through independent distributors concentrates relatively large amounts of receivables in relatively few customer accounts. We have successfully done business with most of these distributors for many years. We monitor amounts that are not paid according to terms. We attempt to accrue for potential losses due to non-payment. Financial conditions in international markets can change very quickly and our allowance for doubtful accounts cannot anticipate all potential changes. Our allowance for doubtful accounts was approximately $0.2 million and $0.5 million at December 31, 2007 and 2006, respectively. As a percentage of total accounts receivable, the allowance was 2.0% at December 31, 2007 and 4.6% at December 31, 2006. The decrease in allowance as a percent of total accounts receivable is due primarily to the 2007 write-off of a large receivable from a terminated international distributor in the Middle East.

Inventory Valuation. Inventories are recorded at the lower of manufacturing cost or net realizable value. Prior to 2006, manufacturing costs exceeded net realizable values in certain international markets which required us to record write-downs to our inventories, as future selling prices were lower than manufacturing costs in these markets. These write-downs resulted in lower-of-cost-or-market ("LCM") inventory reserves, which were used as

high-cost inventory was sold into low selling-price international markets. LCM write-downs were $0.7 million during 2005. During the first quarter of 2006, the remaining LCM reserves were fully utilized in connection with the depletion of our high-cost inventories of carbon components purchased from CarboMedics. Consequently, no LCM write-downs were recorded in 2006 or 2007 and future LCM inventory write-downs are not anticipated.

We maintain an obsolescence allowance against certain finished goods inventories to cover resterilization costs for expired or near-expired items. This allowance totaled $0.03 million and $0.20 million at December 31, 2007 and 2006, respectively. In addition, we maintain a reserve against work-in-process ("WIP") inventories to cover scrap costs associated with the completion of this WIP inventory. This reserve totaled $0.1 million and $0.2 million at December 31, 2007 and 2006, respectively. We also maintain finished goods obsolescence reserves against tissue heart valve inventories with less than one year shelf-life remaining. These reserves totaled $0.5 million and $0.4 million at December 31, 2007 and 2006, respectively.

Intangible Assets. We assess the carrying value of our goodwill and other indefinite-lived intangible assets annually in accordance with the provisions of Statement of Financial Accounting Standard ("SFAS") No. 142, *Goodwill and Other Intangible Assets*. The assessment of potential impairment requires certain judgments and estimates, including the determination of an event indicating impairment, the future cash flows to be generated by the asset, risks associated with those cash flows, and the discount rate to be utilized. During 2007, we recorded an impairment charge of $0.8 million related to licensing fee and development milestone payments made to a Swedish research firm related to filtration technology for cardiac surgery procedures. As of December 31, 2007, we believe the carrying value of our intangible assets, including the CarboMedics carbon technology license and the goodwill and definite-lived intangible assets acquired in connection with our acquisitions of 3F and the assets of the surgical cryoablation business of CryoCath, are recoverable and that no further impairment charges are necessary.

Deferred Tax Assets. We have incurred cumulative tax losses of approximately $152 million. The losses are carried forward for U.S. and state corporate income taxes and can be used to reduce future taxable income. As a result, at December 31, 2007 we had net deferred tax assets totaling approximately $58.9 million. We have recorded a full valuation allowance against these assets because of the limited lives of the carryforwards and our lack of earnings history, which has resulted in our conclusion that it is not more than likely we will be able to utilize our loss carryforwards. The ability to utilize a portion of our cumulative tax losses to offset future taxable income is subject to certain limitations under Section 382 and 383 of the Internal Revenue Code due to changes in the equity ownership of the Company. In addition, 3F's tax loss carryforwards may also be limited by separate return limitation year rules.

Convertible Debt and Derivative Instruments. We account for embedded derivatives related to our Convertible Senior Notes under SFAS No. 133, *Accounting for Derivative Instruments and Hedging Activities,* and related Emerging Issues Task Force ("EITF") Interpretations and SEC rules, which require certain embedded derivative financial instruments to be bifurcated from the debt agreement and accounted for as a liability. Our Convertible Senior Notes contain several embedded derivatives. The valuation of derivatives requires management to make certain judgments and estimates, including the potential future fair value of our common stock, the probability of a change in control of the Company and the probability that the debt may be put back to or called by us.

Stock-Based Compensation. We account for our stock-based employee compensation plans under the recognition and measurement principles of SFAS No. 123 (Revised 2004), *Share-Based Payment* ("Statement 123(R)"), which requires all share-based payments to be recognized in the income statement based on their fair values. Pro forma disclosure is no longer an alternative.

Statement 123(R) was adopted by the Company on January 1, 2006 using the modified prospective transition method. Accordingly, we have not restated our consolidated financial statements for prior periods. Under this transition method, stock-based compensation expense for 2006 includes expense related to our stock-based compensation awards granted in 2006 and those awards granted prior to, but not yet vested as of, January 1, 2006, based on the grant-date fair value estimated in accordance with the provision of SFAS No. 123. Stock-based compensation expense for all grants and awards made on or after January 1, 2006 are based on the grant-date fair value estimated in accordance with the provisions of Statement 123(R). During the last two years, we have issued restricted stock unit awards ("RSUs") to our employees. The fair value of RSUs is determined based on the closing market price on the award date. Prior to the adoption of Statement 123(R), we accounted for our stock-based employee compensation plans under the recognition and measurement principles of Accounting Principles Board ("APB") Opinion No. 25 and related interpretations.

Results of Operations

The following table provides the dollar and percentage change in our Statements of Operations for 2007 compared to 2006 and 2006 compared to 2005.

			Increase (Decrease)				Increase (Decrease)	
(In thousands)	2007	2006	$	%	2006	2005	$	%
Net sales	$49,587	$40,449	$9,138	22.6%	$40,449	$34,636	$5,813	16.8%
Cost of goods sold	21,348	19,568	1,780	9.1%	19,568	22,828	(3,260)	(14.3)%
Gross profit	28,239	20,881	7,358	35.2%	20,881	11,808	9,073	76.8%
Operating expenses:								
Sales and marketing	24,633	21,008	3,625	17.3%	21,008	18,948	2,060	10.9%
Research and development	7,546	3,381	4,165	123.2%	3,381	1,733	1,648	95.1%
Acquired in-process R&D	3,500	14,400	(10,900)	(75.7)%	14,400	-	14,400	-
Distributor termination expense	-	733	733	(100.0)%	733	-	733	-
General and administrative	10,417	8,786	1,631	18.6%	8,786	7,314	1,578	21.6%
Amortization of intangibles	2,516	106	2,410	2,273.6%	106	-	106	-
Impairment of intangibles	755	-	755	-	-	-	-	-
Total operating expenses	49,367	48,414	953	2.0%	48,414	27,995	20,419	72.9%
Operating loss	(21,128)	(27,533)	(6,405)	(23.3)%	(27,533)	(16,187)	11,346	70.1%
Interest expense, net	(1,822)	(1,669)	153	9.2%	(1,669)	(338)	1,331	393.8%
Other income, net	61	1,528	(1,467)	(96.0)%	1,528	2,131	(603)	28.3%
Net loss before income taxes	(22,889)	(27,674)	(4,785)	(17.3)%	(27,674)	(14,394)	13,280	92.3%
Income tax expense	119	-	119	-	-	-	-	-
Net loss	($23,008)	($27,674)	($4,666)	(16.9)%	($27,674)	($14,394)	$13,280	92.3%

The following table presents our Statements of Operations as a percentage of net sales for 2007, 2006 and 2005.

	2007	2006	2005
Net sales	100.0%	100.0%	100.0%
Cost of goods sold	43.1%	48.4%	65.9%
Gross profit	56.9%	51.6%	34.1%
Operating expenses:			
Sales and marketing	49.7%	51.9%	54.7%
Research and development	15.2%	8.4%	5.0%
Acquired in-process R&D	7.1%	35.6%	0.0%
Distributor termination expense	0.0%	1.8%	0.0%
General and administrative	21.0%	21.7%	21.1%
Amortization of intangibles	5.1%	0.3%	0.0%
Impairment of intangibles	1.5%	0.0%	0.0%
Total operating expenses	99.6%	119.7%	80.8%
Operating loss	-42.6%	-68.1%	-46.7%
Interest expense, net	-3.7%	-4.1%	-1.0%
Other income, net	0.1%	3.8%	6.2%
Net loss before income taxes	-46.2%	-68.4%	-41.6%
Income tax expense	0.2%	0.0%	0.0%
Net loss	-46.4%	-68.4%	-41.6%

Net Sales. The following table provides the dollar and percentage change in our net sales inside and outside the United States and Canada for 2007 compared to 2006 and 2006 compared to 2005.

			Increase				Increase	
(In thousands)	2007	2006	$	%	2006	2005	$	%
United States and Canada	$18,874	$15,704	$3,170	20.2%	$15,704	$13,194	$2,510	19.0%
Outside U. S. and Canada	30,713	24,745	5,968	24.1%	24,745	21,442	3,303	15.4%
Total	$49,587	$40,449	$9,138	22.6%	$40,449	$34,636	$5,813	16.8%

The following table provides our net sales inside and outside the United States and Canada as a percentage of total net sales for 2007, 2006 and 2005.

	2007	2006	2005
United States and Canada	38.1%	38.8%	38.1%
Outside U. S. and Canada	61.9%	61.2%	61.9%
Total	100.0%	100.0%	100.0%

The following table provides our net sales by product group for 2007, 2006 and 2005.

			Increase				Increase	
(In thousands)	2007	2006	$	%	2006	2005	$	%
Heart valve therapy	$38,558	$35,343	$3,215	9.1%	$35,343	$31,652	$3,691	11.7%
Surgical arrhythmia therapy	9,689	4,554	5,135	112.8%	4,554	2,455	2,099	85.5%
Surgical tools and accessories	1,340	552	788	142.7%	552	529	23	4.3%
Total	$49,587	$40,449	$9,138	22.6%	$40,449	$34,636	$5,813	16.8%

Heart valve therapy sales, our largest product group, consists of mechanical and tissue heart valves and heart valve repair products. Our mechanical heart valve products continue to be our primary product line and comprised approximately 72% of our worldwide sales for 2007, compared to 82% for 2006 and 90% for 2005. U.S. mechanical heart valve sales revenue for 2007 declined approximately 18% from 2006 and 2006 MHV revenue was flat compared to 2005, reflecting the continued decline in the overall MHV market due to the encroachment of tissue valves. However, international mechanical heart valve sales increased approximately 20% in 2007 and 9% in 2006 over their same periods in the prior year, due primarily to the expansion of direct selling operations in three international markets in 2007. Worldwide heart valve therapy revenue has also increased due to sales growth of our repair ring products, which were introduced in the second quarter of 2006.

Net sales generated from surgical arrhythmia therapy products consist of cryotherapy products for the ablation of cardiac arrhythmias. Net sales of these products prior to the third quarter of 2007 are representative of our prior distribution and agency agreements with CryoCath. Through our acquisition of the surgical cryoablation business of CryoCath in June 2007, these sales increased significantly in the second half of 2007 and should continue to do so in future quarters due to a gross-up on certain sales for which we had served as an agent and received a commission and to the addition of direct sales to other CryoCath corporate customers.

Net sales have been favorably impacted by revenue from the acquisitions, new business initiatives and partnerships discussed above, primarily revenue derived from surgical cryotherapy products, annuloplasty repair rings, c-rings and accessories, and cardiac anastomosis assist devices. Approximately 28% of our worldwide revenue in 2007 was derived from products other than mechanical heart valves, up from approximately 18% in 2006 and 10% in 2005.

Cost of Goods Sold and Gross Profit. Our gross profit has benefited from sales of lower cost mechanical heart valves which are now manufactured entirely in our own facilities. By the middle of the first quarter of 2006, we had substantially depleted our high-priced inventories of carbon components purchased from CarboMedics, and

had moved into lower-cost, internally-produced carbon material cost layers. This transition to full in-house manufacture of mechanical heart valves favorably impacted our 2007 and 2006 gross profit compared to the prior year by approximately $2.5 million and $5.3 million, respectively, and improved our gross profit percentage of net sales for these same periods by approximately 5.0 and 13.0 percentage points, respectively, compared to the prior year.

Our 2007 gross profit, both in dollars and in percentage of net sales, also benefited from direct sales of surgical cryotherapy products in the second half of 2007 resulting from our acquisition of the surgical cryoablation business of CryoCath in June 2007. These sales include the gross-up on certain sales for which we had served as an agent and received a commission prior to the acquisition and the addition of direct sales to other CryoCath corporate customers.

Our 2007 gross profit percentage was negatively impacted by a shift in the mix of our mechanical heart valve product sales. Lower U.S. mechanical heart valve unit sales volume, coupled with higher international MHV sales at lower average selling prices and gross margins than the U.S., lowered our 2007 and 2006 gross profit as a percentage of net sales by approximately 0.6 and 2.5 percentage points, respectively, compared to prior year. The 2007 mix shift impact was lessened by higher mechanical heart valve average selling prices in both U.S. and international markets compared to 2006.

Our 2007 gross profit percentage was also negatively impacted by 3F obsolescence costs and manufacturing variances due to low manufacturing volumes and by cryoablation manufacturing start-up costs. These period costs lowered our 2007 and 2006 gross profit as a percentage of net sales by approximately 2.0 and 0.3 percentage points, respectively, compared to the prior year.

Sales and Marketing. In the United States, our sales and marketing costs in 2007 increased approximately 5% over the prior year, to $15.1 million, while 2006 U.S. sales and marketing costs increased approximately 6% over the prior year to $14.4 million. The 2007 increase reflects the addition of marketing expenses for 3F related to the market launch of our first generation tissue heart valve, hiring costs for additional marketing personnel and $0.2 million of higher stock compensation expense related primarily to accelerated vesting of restricted stock units under contingent vesting provisions which were triggered or met, offset in part by lower spending in the U.S. field sales force. Field selling costs in the United States were $0.6 million, or 6% lower in 2007 compared to 2006, reflecting the turnover of and reduction in field sales personnel. The 2006 increase was due primarily to $0.6 million of stock compensation expense recognized in 2006 as we implemented Statement 123(R) effective January 1, 2006, as well as to the development of marketing programs to support new products and services and to increase the U.S. market share of our mechanical heart valve.

Internationally, our sales and marketing costs in 2007 and 2006 increased over the prior year approximately 45% and 23% to $9.6 million and $6.6 million, respectively. Both increases reflect our continued investment in international markets, including the establishment of a European support office in the third quarter of 2006 to support the expansion of our direct sales operations in Europe, and higher sales and marketing expenses in Eastern Europe, Asia and China. Since 2003, we have established sales and/or distribution operations in France (2003), China (2004), Germany (2005) and Austria (2006). In the third quarter of 2007, we began direct sales activities in Switzerland. Our higher international sales and marketing costs in 2007 were also attributable, in part, to rising Euro-to-U.S. dollar foreign exchange rates during 2007. More than two-thirds of our 2007 international sales and marketing costs were denominated in Euros.

Research and Development. R & D expenses in 2007 increased 123% to $7.5 million and increased 95% to $3.4 million in 2006, both compared to the prior year. These increases in R & D reflect the addition of research, clinical and regulatory costs for 3F ($4.8 million in 2007 and $1.3 million in 2006) and the hiring of a Vice President for R & D during 2006. The higher R & D spending for both years also reflects increases in the number of internal R & D programs.

Acquired In-Process R & D. In connection with our acquisition of the assets of the surgical cryoablation business of CryoCath, we recorded a non-recurring in-process R & D ("IPR&D") charge of $3.5 million in the second quarter of 2007. See Note 2 of "Notes to Consolidated Financial Statements" in this Form 10-K for additional information regarding the CryoCath asset acquisition, including the purchase price and the preliminary allocation of the purchase price. The IPR&D relates to SurgiFrost XL, a product line in development to enable less invasive stand alone or sole therapy solutions to treat AF. We used the income approach to determine the fair value of IPR&D, applying a risk adjusted discount rate of 30% to the development project's projected cash flows.

In connection with our acquisition of 3F, we recorded a non-recurring IPR&D charge of $14.4 million in the third quarter of 2006. See Note 2 of "Notes to Consolidated Financial Statements" in this Form 10-K for additional information regarding the 3F acquisition. The IPR&D relates to the Enable sutureless tissue valve product line. We used the income approach to determine the fair value of IPR&D, applying a risk adjusted discount rate of 37% to the development project's projected cash flows.

General and Administrative. General and administrative ("G & A") expenses for 2007 increased $1.6 million from the prior year to $10.4 million. For 2006, G & A expenses increased $1.6 million from the prior year to $8.8 million.

Major cost increases in G & A expenses for 2007 over 2006 related to severance costs for terminated employees of $0.7 million, corporate facilities and business development expenses of $0.7 million, legal fees of $0.9 million, and compensation costs related primarily to staff additions of $0.3 million. These cost increases were offset, in part, by $0.5 million in lower 2007 corporate bonus accruals, $0.4 million in lower outside services and consulting fee expenses and $0.3 million in lower bad debt expense related to the termination in 2006 of an international distributor.

Major cost increases in G & A expenses for 2006 over 2005 were incurred for outside consulting, legal and professional services of $0.8 million, bad debt expense of $0.5 million ($0.3 million of which related to the international distributor termination referenced above), $0.3 million for bonuses and incentive compensation, and $0.1 million for amortization of intangible assets acquired in connection with our acquisition of 3F. These increases were partially offset by the allocation of 401(k) company match expense from G & A to individual operating departments beginning in 2006.

We recognized total stock compensation expense in 2007 of $1.45 million, of which $0.65 million was included in G & A expenses and $0.80 million in sales and marketing expenses. For 2006, we recognized total stock compensation expense of $1.11 million, of which $0.45 million was included in G & A expenses and $0.65 million in sales and marketing expenses. The increase in stock compensation expense for 2007 over 2006 reflects primarily $0.25 million of accelerated vesting of restricted stock units under contingent vesting provisions which were triggered or met.

Amortization of Intangibles. We recognized $2.5 million of amortization expense in 2007 related to (1) initial amortization of our pyrolytic carbon technology license with CarboMedics, (2) acquired definite-lived intangible assets connected with the September 2006 acquisition of 3F and (3) amortization of the definite-lived intangible assets acquired in our June 2007 purchase of the surgical cryoablation business of CryoCath. See Note 6 of "Notes to Consolidated Financial Statements" in this Form 10-K for more information regarding the CarboMedics technology license and its change in status from an indefinite-lived to a definite-lived intangible asset. We recognized $0.1 million of amortization expense in 2006 related to initial amortization of acquired definite-lived intangible assets connected with the acquisition of 3F. We estimate amortization expense for 2008 to be approximately $3.5 million.

Impairment of Intangibles. We made licensing fee and development milestone payments to ErySave AB, a Swedish research firm, under an exclusive development and licensing agreement, executed in 2004, for worldwide rights to ErySave's PARSUS filtration technology for cardiac surgery procedures. In July 2007, we were informed that ErySave was in the process of declaring bankruptcy and they could not continue development work. Accordingly, the $0.8 million ErySave license payments intangible asset was written off in the second quarter of 2007.

Net Interest Expense. Net interest expense was attributable primarily to the sale, in 2005, of $22.4 million aggregate principal amount of 6% Convertible Senior Notes ("Notes"). Interest expense on these Notes in 2007, 2006 and 2005 was $1.9 million, $2.1 million and $0.4 million, respectively, which also includes amortization of (1) financing costs, (2) the discount related to the implied value of common stock warrants sold with the Notes, and (3) the discounts related to the derivative financial instruments bifurcated from the Notes. See Note 7 of "Notes to Consolidated Financial Statements" in this Form 10-K for more information regarding these Notes and the related derivative instruments. Interest expense was also attributable to bank notes with Silicon Valley Bank, including the June 2007 $8.6 million Term Loan ("Term Loan") obtained in connection with the CryoCath asset acquisition. See "Liquidity and Capital Resources-Financing Activities" below for a detailed discussion of the Term Loan.

Interest income for 2007, 2006 and 2005 was $0.7 million, $0.7 million and $0.3 million, respectively, and is attributable to the investment of our cash balances.

Net Other Income. In connection with our June 2007 private equity placement, we sold to Alta a seven-year warrant to purchase up to 1,960,000 shares of our common stock at an exercise price of $1.65 per share. Under the terms of the warrant, if we do not receive approval from our shareholders at our 2008 annual meeting of shareholders (or any subsequent annual meeting) to issue shares of common stock to Alta upon exercise of the warrant, then the warrant will become exercisable on June 28, 2008, and Alta will be entitled to receive, upon exercise of the warrant, cash in an amount equal to the difference between the then-current fair market value of the shares underlying the warrant and the aggregate exercise price of the warrant. If we do receive shareholder approval to issue shares of common stock upon exercise of the warrant, then the warrant will become exercisable upon receipt of such shareholder approval and Alta will be entitled to receive shares of common stock upon exercise of the warrant. Accordingly, the fair value of the warrant has been recorded as a liability on the balance sheet and marked to market at June 30, September 30 and December 31, 2007, resulting in a net non-operating change in valuation charge to other expense of $0.7 million for 2007.

During 2007, 2006 and 2005 we recorded non-operating other income totaling $0.1 million, $1.5 million and $2.1 million, respectively, for the change in the Notes derivative liability to fair value. The large decline in this other income in 2007 as compared to prior years relates to the elimination of the largest of the embedded derivatives in the Notes (the conversion feature derivative), which was no longer required to be accounted for as a derivative after our authorized shares were increased at our Annual Meeting of Shareholders on September 25, 2006. See Note 7 of "Notes to Consolidated Financial Statements" in this Form 10-K for more information regarding the Notes derivative liability and our accounting for the related derivative financial instruments under SFAS No.133, *Accounting for Derivative Instruments and Hedging Activities.*

Other income for 2007 also includes $0.6 million of net foreign currency transaction gains, which includes $0.3 million of foreign currency gains related to short-term intercompany balances with foreign subsidiaries.

Income Taxes. In 2007, we recognized $0.1 million of income tax expense and a related deferred income tax liability related to the deductibility of goodwill in the CryoCath asset acquisition for tax purposes, but not for book purposes. In future years, we will continue recognizing deferred income tax expense related to this goodwill over its tax life as long as there is no impairment of the goodwill's recorded value.

Through 2007 we have accumulated approximately $152 million of net operating loss ("NOL") carryforwards for U.S. tax purposes ($54 million related to 3F). We believe that our ability to fully utilize the existing NOL carryforwards could be restricted on a portion of the NOL by changes in control that may have occurred or may occur in the future and by our ability to generate net income. We have initiated a formal study of whether, or to what extent, past changes in control of ATS impairs our NOL carryforwards. We have not recorded any deferred tax asset related to our NOL carryforwards and other deferred items as we currently cannot determine that it is more likely than not that this asset will be realized and we, therefore, have provided a valuation allowance for the entire asset.

Net Loss. Our net losses in 2007, 2006 and 2005 were $23.0 million, $27.7 million and $14.4 million, respectively. Our decrease in net loss in 2007 compared to 2006 was due primarily to lower acquisition-related IPR&D charges in 2007. This was partially offset by higher operating expenses, which increased more than net sales and gross profit, and to lower non-operating other income for 2007, all of which are described in detail above. Our increase in net loss in 2006 compared to 2005 was due primarily to the $14.4 million non-recurring IPR&D charge recorded in 2006 in connection with the 3F acquisition discussed above.

Liquidity and Capital Resources

Cash, cash equivalents, and short-term investments totaled $14.7 million and $10.7 million at December 31, 2007 and December 31, 2006, respectively.

Operating Activities. During 2007, we received cash payments from customers of approximately $50.7 million and made payments to employees and suppliers of approximately $59.6 million. During 2006, we received cash payments from customers of approximately $41.5 million and made payments to employees and suppliers of approximately $49.4 million. Over the last five years, we have incurred significant expenses to commercialize the ATS heart valve both in the United States and in many international markets, have invested in new products and technologies and have completed strategic acquisitions and business partnerships to diversify our product

portfolio. As we build sales in future periods and our cost of inventories decrease, we believe our operating losses will decrease and we will move toward a cash flow breakeven on sales and eventually to profitability.

Investing Activities. Our major investing activity during 2007 was the acquisition of the assets of the surgical cryoablation business of CryoCath in June. We paid $22 million at the closing (subsequently reduced by $0.9 million) and paid approximately $1.8 million in transaction costs during 2007. See Note 2 of "Notes to Consolidated Financial Statements" in this Form 10-K for additional details of this acquisition.

We purchased leasehold improvements, property and equipment totaling $0.7 million, $1.2 million, and $2.3 million during 2007, 2006 and 2005, respectively. Since the beginning of 2006, our capital spending has declined as a significant portion of our pyrolytic carbon facility was completed by the end of 2005.

We also spent $0.3 million in 2007 for the purchase of patents, patent rights and other intellectual property. See Note 6 of "Notes to Consolidated Financial Statements" in this Form 10-K for more information regarding these intangible asset purchases.

Financing Activities. During 2007 we raised $30.6 million, net of offering costs, through two private placement sales of common stock. The first, in March 2007, raised $15.3 million, net of offering costs, through the sale of 8,125,000 shares of our common stock at a price of $2.00 per share and warrants to purchase 3,250,000 shares of our common stock at an exercise price of $2.40 per share. The second, in June 2007, raised $15.3 million, net of offering costs, through the sale of 9,800,000 shares of our common stock at a price of $1.65 per share and a seven-year warrant to purchase up to 1,960,000 shares of our common stock at an exercise price of $1.65 per share, as further described in Note 5 of "Notes to Consolidated Financial Statements" in this Form 10-K. We also received net proceeds of $0.7 million, $0.1 million and $0.5 million during 2007, 2006 and 2005, respectively, from the issuance of common stock through exercises of stock options and purchases under our employee stock purchase plan.

Since 2004 we have maintained a Loan and Security Agreement ("Loan Agreement") with Silicon Valley Bank (Bank) which established, among other things, a $2.5 million three-year term loan. In March 2006, the Bank agreed to provide for additional advances of up to $1.5 million. We fully drew down both the $2.5 million term loan and the $1.5 million advance amount, which were being repaid over 36 and 60 month periods, respectively. All ATS assets are pledged as collateral. We are also subject to certain financial covenants under the Loan Agreement, as amended.

In June 2007, we entered into an Amendment to the Loan Agreement ("June 2007 Amendment") whereby the Bank consented to (1) our purchase of the surgical cryoablation assets from CryoCath ("CryoCath Assets") and (2) certain agreements related to the acquisition of the CryoCath Assets. The June 2007 Amendment also provided for a new $8.6 million Term Loan, which we used to repay the outstanding term loan and advances from the Bank under the Loan Agreement and to purchase the CryoCath Assets. Under the Term Loan, we were required to make monthly payments of interest only from July 2007 through December 2007 and monthly payments of principal plus interest beginning January 2008 and continuing until June 2011. In February 2008, the June 2007 Amendment was amended to extend the principal repayment commencement date until April 2008. We have the right to prepay all, but not less than all, of the outstanding Term Loan at any time so long as no event of default has occurred. Interest on the Term Loan accrues at a fixed rate per annum equal to 1.25% above the Prime Rate which was in effect as of the funding date of the Term Loan.

The June 2007 Amendment also made certain changes to the liquidity ratio test set forth in the Loan Agreement, as amended. The liquidity ratio was changed to require that we maintain, at all times, on a consolidated basis, a ratio of (1) the sum of (a) our unrestricted cash (and equivalents) on deposit with the Bank plus (b) 50% of the our accounts receivable arising form the sale or lease of goods, or provision of services, in the ordinary course of business, divided by (2) our indebtedness to the Bank for borrowed money, of equal to or greater than 1.4 to 1.0. As of December 31, 2007, we were in compliance with all financial covenants set forth in the Loan Agreement, as amended.

In October 2005, we sold a combined $22.4 million aggregate principal amount of 6% Convertible Senior Notes due in 2025, warrants to purchase 1,344,000 shares of our common stock ("Warrants") and certain embedded derivatives. The Warrants are exercisable at $4.40 per share and expire in 2010. We used the proceeds from the Notes for general corporate purposes, working capital, capital expenditures and to fund business development opportunities. Interest on the Notes is due semi-annually in April and October. The Notes are convertible into common stock at any time at a fixed conversion price of $4.20 per share, subject to certain adjustments. If fully

converted, the Notes would convert into approximately 5,333,334 shares of our common stock. If the Notes are converted under certain circumstances on or prior to October 15, 2008, we will pay the investors the interest they would have received on the Notes through that date. We have the right to redeem the Notes at 100% of the principal amount plus accrued interest at any time on or after October 20, 2008, and the investors have the right to require us to repurchase the Notes at 100% of the principal amount plus accrued interest on October 15 in 2010, 2015 and 2020. See Note 7 of "Notes to Consolidated Financial Statements" in this Form 10-K for a full description of the terms and provisions of the Notes.

Cash Management

We estimate that operating costs will remain high in comparison to sales during 2008 and will require the use of cash to fund operations. Based upon the current forecast of sales and operating expenses, we anticipate having cash to fund our operations through 2008. However, we may need to raise additional cash in or after 2008 to provide operating plan leverage, to fund our strategic investments and accelerate the development platforms for our 3F tissue and/or surgical cryoablation technologies, or to opportunistically add accretive products to our distribution network. As identified in Item 1A of this Form 10-K, any adverse change that affects our revenue, access to the capital markets or future demand for our products will affect our long-term viability. Maintaining adequate levels of working capital depends in part upon the success of our products in the marketplace, the relative profitability of those products and our ability to control operating and capital expenses.

Funding of our operations in future periods may require additional investments in ATS in the form of equity or debt. Any sale of additional equity or issuance of debt securities may result in dilution to our stockholders, and we cannot be certain that additional public or private financing will be available in amounts or on terms acceptable to us, or at all. If we are unable to obtain this additional financing when needed, we may be required to delay, reduce the scope of, or eliminate one or more aspects of our business development activities, which could harm the growth of our business.

Off-Balance Sheet Arrangements

We do not have any "off-balance sheet arrangements" (as such term is defined in Item 303 of Regulation S-K) that are reasonably likely to have a current or future effect on our financial condition, changes in financial condition, revenues or expenses, operating results, liquidity, capital expenditures or capital resources.

Contractual Obligations

The following table sets forth our future payment obligations:

	Payments Due By Period				
(in thousands)	Total	Less Than 1 year	1-3 Years	3-5 Years	More Than 5 Years
Convertible notes payable (1)	$46,592	$1,344	$4,032	$4,032	$37,184
Bank notes payable (1)	10,086	3,179	6,907	-	-
Operating leases	2,073	836	1,237	-	-
Purchase commitments (2)	21,750	10,000	11,750	-	-
Total	$80,501	$15,359	$23,926	$4,032	$37,184

(1) Includes interest payments.

(2) Includes mechanical heart valve component purchases under our supply agreement with CarboMedics. CarboMedics has filed a complaint against us alleging that CarboMedics is obligated to supply these mechanical heart valve components under a long-term supply agreement. We believe that the complaint is without merit, that CarboMedics has repudiated and breached the supply agreement, and that we may have affirmative claims against CarboMedics. Although CarboMedics initially sought specific performance and claimed damages of approximately $20 million, it has since withdrawn its request for specific performance and revised its damages estimate to $13.6 million before accounting for net present value adjustments, interest, attorneys fees, and costs. See Item 3 "Legal Proceedings – CarboMedics Litigation."

Cautionary Statements

This document contains forward-looking statements within the meaning of federal securities laws that may include statements regarding intent, belief or current expectations of ATS and our management. The Private Securities Litigation Reform Act of 1995 provides a "safe harbor" for forward-looking statements to encourage companies to provide prospective information without fear of litigation so long as those statements are identified as forward-looking and are accompanied by meaningful cautionary statements identifying important factors that could cause actual results to differ materially from those projected in the statement. We desire to take advantage of these "safe harbor" provisions. Accordingly, we have identified in Item 1A of this Form 10-K important risk factors which could cause our actual results to differ materially from any such results which may be projected, forecast, estimated or budgeted by us in forward-looking statements made by us from time to time in reports, proxy statements, registration statements and other written communications, or in oral forward-looking statements made from time to time by our officers and agents. We do not intend to update any of these forward-looking statements after the date of this Form 10-K to conform them to actual results.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The primary objective of our investment activities is to preserve principal while at the same time maximizing the income we receive from our investments without significantly increasing risk. Some of the securities that we invest in may have market risk. This means that a change in prevailing interest rates may cause the fair market value of the principal amount of the investment to fluctuate. For example, if we hold a security that was issued with a fixed interest rate at the then prevailing rate and the prevailing interest rate later rises, the fair value of the principal amount of our investment will probably decline. To minimize this risk, our portfolio of cash equivalents and short-term investments may be invested in a variety of securities, including commercial paper, money market funds, and both government and non-government debt securities. The average duration of all our investments has generally been less than one year. Due to the short-term nature of these investments, we believe we have no material exposure to interest rate risk arising from our investments.

In the United States, the United Kingdom, France, Germany, Belgium, the Netherlands and Switzerland, we sell our products directly to hospitals. In other international markets, we sell our products to independent distributors who, in turn, sell to medical hospitals. Loss, termination, or ineffectiveness of distributors to effectively promote our product would have a material adverse effect on our financial condition and results of operations.

Transactions with U.S. and non-U.S. customers and distributors, other than in our direct selling markets in Europe, are entered into in U.S. dollars, precluding the need for foreign currency hedges on such sales. Sales through our French and German subsidiaries, as well as through our European export company to Belgium and the Netherlands, are in Euros. Sales to the United Kingdom and Switzerland are made through our European export company and are denominated in pounds and Swiss francs, respectively. Therefore, we are subject to profitability risk arising from exchange rate movements. We have not used foreign exchange contracts or similar devices to reduce this risk. We will evaluate the need to use foreign exchange contracts or similar devices, if sales in our European direct markets increase substantially.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Our Consolidated Financial Statements and the reports of our registered public accounting firm are included in this Form 10-K beginning on page F-1. The index to these reports and the financial statements is included in Item 15 below.

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

Not Applicable.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures, which are designed to ensure that information required to be disclosed in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our chief executive officer, or CEO, and chief financial officer, or CFO, as appropriate to allow timely decisions regarding required disclosure.

Under the supervision and with the participation of our management, including our CEO and CFO, we evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act) as of the end of the period covered by this annual report. Based on that evaluation, our management, including the CEO and CFO, concluded that our disclosure controls and procedures were effective as of December 31, 2007.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Our internal control system was designed to provide reasonable assurance to our management and Board of Directors regarding the preparation and fair presentation of our published financial statements. All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation.

Under the supervision and with the participation of our management, including our CEO and CFO, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in "Internal Control — Integrated Framework" issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on our evaluation under the framework in "Internal Control — Integrated Framework," our management concluded that our internal control over financial reporting was effective as of December 31, 2007.

The effectiveness of our internal control over financial reporting as of December 31, 2007, has been audited by Grant Thornton LLP, the independent registered public accounting firm who also has audited our consolidated financial statements as of and for the year ended December 31, 2007, included in this Form 10-K. Grant Thornton's attestation report on the effectiveness of our internal control over financial reporting appears on page F-3 of this Form 10-K.

Changes in Internal Control Over Financial Reporting

There have been no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) during the fiscal quarter ended December 31, 2007 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

See Item 1 of this Form 10-K for certain information regarding our executive officers.

Reference is made to information contained under the headings "Proposal 1 - Election of Directors," "Committees of the Board of Directors and Attendance," "Nominations," and "Section 16(a) Beneficial Ownership Reporting Compliance" in our definitive proxy statement for our 2008 Annual Meeting of Shareholders to be filed with the SEC on or before April 8, 2008 (our "2008 Proxy Statement"), which information is incorporated herein.

In 2004, we adopted a Code of Conduct for our employees, including our principal executive officer, principal financial officer and principal accounting officer, which is posted on our website (www.atsmedical.com). We intend to satisfy the disclosure requirement under Item 5.05 of Form 8-K regarding an amendment to, or waiver from, a provision of the Code of Conduct by posting such information on our website at the address specified above.

ITEM 11. EXECUTIVE COMPENSATION

Reference is made to information contained under the headings "Executive Compensation" and "Compensation of Directors" in our 2008 Proxy Statement, which information is incorporated herein.

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

Reference is made to information contained under the headings "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plans" in our 2008 Proxy Statement, which information is incorporated herein.

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

Reference is made to information contained under the headings "Director Independence" and "Related Person Transaction Policy" in our 2008 Proxy Statement, which information is incorporated herein.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Reference is made to information contained under the heading "Independent Registered Public Accounting Firm Fees" in our 2008 Proxy Statement , which information is incorporated herein.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

Financial Statements

Our Consolidated Financial Statements and the Independent Registered Public Accounting Firm's Reports thereon are included herein (page numbers refer to pages following the signature page of this Annual Report on Form 10-K):

Financial Statement Schedules

ATS MEDICAL, INC.
SCHEDULE II - VALUATION AND QUALIFYING ACCOUNTS AND RESERVES
(in thousands)

Description	Balance at Beginning of Period	Additions - Charged to Costs and Expenses	Additions - Charged to Other Accounts - Describe		Deductions - Describe		Balance at End of Period
Valuation Accounts:							
Deducted from asset accounts:							
Year ended December 31, 2007:							
Allowance for doubtful accounts	$537	$250	$ -		($562)	(1)	$225
Allowance for obsolete inventories	608	(117)	-		-		491
Year ended December 31, 2006:							
Allowance for doubtful accounts	360	493	11	(4)	(327)	(1)	537
Allowance for obsolete inventories	215	50	436	(3)	(93)	(2)	608
Year Ended December 31, 2005:							
Allowance for doubtful accounts	388	-	-		(28)	(1)	360
Allowance for obsolete inventories	200	50	-		(35)	(2)	215

(1) Uncollectible accounts written off, net of recoveries.
(2) Changes in estimate recovered through a reduction in expenses.
(3) Obsolescence reserve for inventories recorded in connection with the purchase accounting for the 3F acquisition.
(4) Allowance for doubtful accounts recorded in connection with the purchase accounting for the 3F acquisition.

All other schedules have been omitted because of absence of conditions under which they are required or because the required information is included in the financial statements or notes thereto.

Exhibits

Exhibit Number	Description
2.1***	Agreement and Plan of Merger, dated as of January 23, 2006, by and among ATS Medical, Inc., Seabiscuit Acquisition Corp.; 3F Therapeutics, Inc.; and Boyd D. Cox, as Stockholder Representative (Incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed on January 26, 2006).
2.2	Amendment No. 1 to Agreement and Plan of Merger, dated as of June 13, 2006, by and among ATS Medical, Inc., Seabiscuit Acquisition Corp., 3F Therapeutics, Inc. and Boyd D. Cox, as stockholder representative (Incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K filed on June 19, 2006).
2.3	Amendment No. 2 to Agreement and Plan of Merger, dated as of August 10, 2006, by and among the Company, Seabiscuit Acquisition Corp., 3F Therapeutics, Inc. and Boyd D. Cox, as stockholder representative (Incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K filed on August 15, 2006).
2.4	Escrow Agreement, effective as of September 29, 2006, by and among the Company, Boyd D. Cox, as stockholder representative and Wells Fargo Bank, N.A. (Incorporated by reference to Exhibit 2.4 to the Company's Annual Report on Form 10-K for the year ended December 31, 2006)..
2.5***	Option and Asset Purchase Agreement, dated as of May 31, 2005, by and among ATS Medical, Inc., em Vascular, Inc., Keith L. March, M.D., John Havek, Walter L. Sembrowich and James E. Shapland II (Incorporated by reference to Exhibit 2.5 to the Company's Annual Report on Form 10-K for the year ended December 31, 2006).
2.6	Letter Amendment, dated as of November 29, 2006, to the Option and Asset Purchase Agreement, dated as of May 31, 2005, by and among ATS Medical, Inc., em Vascular, Inc., Keith L. March, M.D., John Havek, Walter L. Sembrowich and James E. Shapland II, (Incorporated by reference to Exhibit 2.6 to the Company's Annual Report on Form 10-K for the year ended December 31, 2006).
2.7***	Asset Purchase Agreement dated June 18, 2007 by and between ATS Medical, Inc. and CryoCath Technologies Inc. (Incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K filed on June 25, 2007).
3.1	Second Restated Articles of Incorporation of ATS Medical, Inc. (Incorporated by reference to Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2006 (the "September 2006 Form 10-Q")).
3.2	Bylaws of the Company, as amended February 13, 2007 (Incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on February 20, 2007).
4.1	Specimen certificate for shares of common stock of the Company (Incorporated by reference to Exhibit 4.1 to the Company's Annual Report on Form 10-K for the year ended December 31, 1997 (the "1997 Form 10-K")).
4.2	Indenture, dated as of October 7, 2005, between ATS Medical, Inc. and Wells Fargo Bank, National Association, as Trustee (Incorporated by reference to Exhibit 4.1 of the Company's Current Report on Form 8-K filed on October 12, 2005 (the "October 12, 2005 Form 8-K")).
4.3	First Supplemental Indenture, dated October 13, 2005, to the Indenture dated as of October 7, 2005, by and between ATS Medical, Inc. and Wells Fargo Bank, National Association, as Trustee (Incorporated by reference to Exhibit 4.3 of the Company's October 18, 2005 Form 8-K).

4.4	Form of 6% Convertible Senior Notes due 2025 (Incorporated by reference to Exhibit 4.1 of the Company's Current Report on Form 8-K filed on October 18, 2005 (the "October 18, 2005 Form 8-K")).
4.5	Form of Warrant (Incorporated by reference to Exhibit 4.2 of the Company's October 18, 2005 Form 8-K).
4.6	Form of Warrant (Incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed on March 16, 2007).
4.7	Warrant, dated June 28, 2007, issued by ATS Medical, Inc. to Alta Partners VIII, L.P. (Incorporated by reference to Exhibit 10.4 to the Company's Current Report on Form 8-K filed on July 5, 2007).
10.1**	1987 Stock Option and Stock Award Plan, as restated and amended to date (Incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 1997).
10.2**	ATS Medical Inc. 2000 Stock Incentive Plan, as amended through September 25, 2006 (Incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on September 29, 2006).
10.3	Lease Agreement between the Company and Crow Plymouth Land Limited Partnership dated December 22, 1987 (Incorporated by reference to Exhibit 10(d) to the Company's Registration Statement on Form S-18, File No. 33-34785-C (the "Form S-18")).
10.4	Amendment No. 1 to Lease Agreement between the Company and Crow Plymouth Land Limited Partnership, dated January 5, 1989 (Incorporated by reference to Exhibit 10(e) to the Form S-18).
10.5	Amendment No. 2 to Lease Agreement between the Company and Crow Plymouth Land Limited Partnership, dated January 1989 (Incorporated by reference to Exhibit 10(f) to the Form S-18).
10.6	Amendment No. 3 to Lease Agreement between the Company and Crow Plymouth Land Limited Partnership, dated June 14, 1989 (Incorporated by reference to Exhibit 10(g) to the Form S-18).
10.7	Amendment No. 4 to Lease Agreement between the Company and Plymouth Business Center Limited Partnership, dated February 10, 1992 (Incorporated by reference to Exhibit 10.8 to the Company's Annual Report on Form 10-K for the year ended December 31, 1996 (the "1996 Form 10-K")).
10.8*	O.E.M. Supply Contract dated September 24, 1990, with CarboMedics, Inc. (Incorporated by reference to Exhibit 10.10 to the 1996 Form 10-K).
10.9*	License Agreement dated September 24, 1990, with CarboMedics, Inc. (Incorporated by reference to Exhibit 10.11 to the 1996 Form 10-K).
10.10**	Employment Agreement between the Company and Michael D. Dale dated September 18, 2002 (Incorporated by reference to Exhibit 10.12 to the Company's Form 10-K for the year ended 2002 (the "2002 Form 10-K")).
10.11	Helix BioCore, Inc. Self-Insurance Trust Agreement dated February 28, 1991 (Incorporated by reference to Exhibit 10.13 to the 1996 Form 10-K).
10.12*	Amendment 1 to License Agreement dated December 16, 1993, with CarboMedics, Inc. (Incorporated by reference to Exhibit 10.17 to the 1993 Form 10-K).

10.13*	Amendment 4 to O.E.M. Supply Contract dated December 16, 1993, with CarboMedics, Inc. (Incorporated by reference to Exhibit 10.18 to the 1993 Form 10-K).
10.14*	Amendment 5 to O.E.M. Supply Contract dated September 1, 1994, with CarboMedics, Inc. (Incorporated by reference to Exhibit 10.19 to the 1994 Form 10-K).
10.15	Letter Agreement between the Company and Sulzer CarboMedics, Inc., dated June 27, 2002 (Incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 20, 2002).
10.16	Form of International Distributor Agreement (Incorporated by reference to Exhibit 10.22 to the 1994 Form 10-K).
10.17	Amendment No. 5 to Lease Agreement between the Company and St. Paul Properties, Inc., dated May 30, 1996 (Incorporated by reference to Exhibit 10.22 to the 1996 Form 10-K).
10.18	Amendment No. 6 to Lease Agreement between the Company and St. Paul Properties, Inc., dated November 25, 1997 (Incorporated by reference to Exhibit 10.23 to the 1997 Form 10-K).
10.19	1998 Employee Stock Purchase Plan, as amended through September 25, 2006 (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on September 29, 2006).
10.20*	Carbon Agreement by and between Sulzer CarboMedics, Inc. and ATS Medical, Inc., dated December 29, 1999 (Incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed on January 13, 2000 (the "January 2000 Form 8-K").
10.21*	Amendment 7 to OEM Supply Contract by and between Sulzer CarboMedics, Inc. and ATS Medical, Inc., dated December 29, 1999 (Incorporated by reference to Exhibit 99.2 to the January 2000 Form 8-K).
10.22*	Amendment 2 to License Agreement by and between Sulzer CarboMedics, Inc. and ATS Medical, Inc., dated December 29, 1999 (Incorporated by reference to Exhibit 99.3 to the January 2000 Form 8-K).
10.23	Amendment No. 7 to Lease Agreement between the Company and St. Paul Properties, Inc., dated May 18, 2000 (Incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2000).
10.24	Lease Agreement between the Company and St. Paul Properties, Inc., dated April 29, 2000 (Incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2000).
10.25	Amendment No. 8 to Lease Agreement between the Company and St. Paul Properties, Inc., dated December 14, 2000 (Incorporated by reference to Exhibit 10.32 to the Company's Annual Report on Form 10-K for the year ended December 31, 2000 (the "2000 Form 10-K")).
10.26*	Amendment 8 to OEM Supply Contract by and between Sulzer CarboMedics, Inc. and ATS Medical, Inc., dated November 3, 2000 (Incorporated by reference to Exhibit 10.33 to the 2000 Form 10-K).
10.27	Form of U.S. Distribution Agreement (Incorporated by reference to Exhibit 10.34 to the 2002 Form 10-K).
10.28	Amendment No. 9 to Lease Agreement between the Company and St. Paul Properties, Inc., dated September 8, 2003 (Incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2003).

10.29**	Form of Employee Stock Option Agreement under the company's 2000 Stock Incentive Plan (Incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report of Form 10-Q for the quarter ended September 30, 2004 (the "September 2004 Form 10-Q")).
10.30**	Form of Non-Qualified Stock Option Agreement under the Company's 2000 Stock Incentive Plan (Incorporated by reference to Exhibit 10.3 to the Company's September 2004 Form 10-Q).
10.31**	Form of Non-Plan Non-Qualified Stock Option Agreement (Incorporated by reference to Exhibit 10.4 to the Company's September 2004 Form 10-Q).
10.32*	Development and License Agreement dated as of April 26, 2004 between the Company and ErySave AB (Incorporated by reference to Exhibit 10.1 to the Company's September 2004 Form 10-Q).
10.33	Credit Agreement between Silicon Valley Bank and the Company, dated July 28, 2004 (Incorporated by reference to Exhibit 10.1 to the Company's September 2004 Form 10-Q).
10.34	Amendment No. 10 to Lease Agreement between the Company and St. Paul Properties, Inc. dated as of October 1, 2004 (Incorporated by reference to Exhibit 10.40 to the Company's Annual Report on Form 10-K for the year ended December 31, 2004 (the "2004 Form 10-K")).
10.35	Letter Agreement between the Company and Centerpulse USA Holding Co. dated July 9, 2003 (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on September 26, 2003).
10.36	Amendment dated June 22, 2005, to Development and License Agreement between the Company and ErySave AB (Incorporated by reference to Exhibit 10.1 of the Company's Quarterly Report on Form 10-Q for the quarter June 30, 2005 (the "June 2005 Form 10-Q")).
10.37*	Marketing Services Agreement with Alabama Tissue Center, Inc. (also known as Regeneration Technologies, Inc. – Cardiovascular), a subsidiary of Regeneration Technologies, Inc., effective as of July 21, 2005 (Incorporated by reference to Exhibit 10.43 of the Company's Annual Report on Form 10-K for the year ended December 31, 2005 (the "2005 Form 10-K")).
10.38*	Exclusive Development, Supply and Distribution Agreement with Genesee BioMedical, Inc., dated June 23, 2005 (Incorporated by reference to Exhibit 10.44 of the 2005 Form 10-K).
10.39	Amendment Agreement, dated March 24, 2005, to the Credit Agreement between Silicon Valley Bank and the Company, dated July 28, 2004 (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on March 30, 2005).
10.40	Securities Purchase Agreement, dated as of October 6, 2005, by and among ATS Medical, Inc. and the Buyers listed on the Schedule of Buyers attached thereto as Exhibit A (Incorporated by reference to Exhibit 10.1 of the Company's October 12, 2005 Form 8-K).
10.41	Amendment No. 1, dated October 12, 2005, to the Securities Purchase Agreement by and among ATS Medical, Inc. and the Buyers listed therein, dated as of October 6, 2005 (Incorporated by reference to Exhibit 10.1 of the Company's October 18, 2005 Form 8-K).
10.42	Registration Rights Agreement, dated as of October 7, 2005, by and among ATS Medical, Inc. and the Buyers listed on the Schedule of Buyers attached thereto as Exhibit A (Incorporated by reference to Exhibit 10.2 of the Company's October 12, 2005 Form 8-K).
10.43	Amendment No. 1, dated October 13, 2005, to the Registration Rights Agreement by and among ATS Medical, Inc. and the Buyers listed therein, dated as of October 7, 2005 (Incorporated by reference to Exhibit 10.2 of the Company's October 18, 2005 Form 8-K).

10.44	Warrant Agent Agreement, dated as of October 7, 2005, between ATS Medical, Inc. and Wells Fargo Bank, National Association, as Warrant Agent (Incorporated by reference to Exhibit 10.3 of the Company's October 12, 2005 Form 8-K).
10.45**	Form of Lock-Up Agreement with Executive Officers (Incorporated by reference to Exhibit 99.1 of the Company's Current Report on Form 8-K filed on December 29, 2005).
10.46**	Form of Restricted Stock Unit Agreement under the Company's 2000 Stock Incentive Plan (Incorporated by reference to Exhibit 10.53 of the 2005 Form 10-K).
10.47	Amendment, dated March 29, 2006, to the Loan and Security Agreement between Silicon Valley Bank and the Company, dated July 28, 2004 (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on April 3, 2006).
10.48**	Form of Change in Control Agreement executed by executive officers of the Company (Incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2006).
10.49*	Exclusive Distribution Agreement, effective as of October 1, 2006, by and between the Company and Novare Surgical Systems, Inc. (Incorporated by reference to Exhibit 10.1 to the Company's September 2006 Form 10-Q).
10.50	Amendment No. 2 dated September 1, 2006, to Original Lease Agreement dated April 29, 2000, by and between the Company and St. Paul Properties, Inc. (Incorporated by reference to Exhibit 10.2 to the Company's September 2006 Form 10-Q).
10.51	Amendment No. 11 dated September 1, 2006, to Original Lease Agreement dated December 22, 1987, by and between the Company and St. Paul Properties, Inc. (Incorporated by reference to Exhibit 10.3 to the Company's September 2006 Form 10-Q).
10.52	Amendment, dated August 15, 2006, to the Loan and Security Agreement between Silicon Valley Bank and the Company, dated July 28, 2004 (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on August 17, 2006).
10.53*	Amendment, effective as of January 1, 2007, to the Marketing Services Agreement with Alabama Tissue Center, Inc. (Incorporated by reference to Exhibit 10.61 of the Company's Annual Report on Form 10-K for the year ended December 31, 2006).
10.54**	Restricted Stock Unit Award Agreement, dated as of December 7, 2006, between the Company and Richard A. Curtis (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on December 13, 2006).
10.55**	Form of Restricted Stock Unit Award Agreement for awards to Non-Employee Directors under 2000 Stock Incentive Plan (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on February 20, 2007).
10.56	Amendment No. 4, dated February 15, 2007, to the Loan and Security Agreement between Silicon Valley Bank and the Company, dated July 28, 2004 (Incorporated by reference to the Company's Current Report on Form 8-K filed on February 23, 2007).
10.57	Securities Purchase Agreement, dated March 15, 2007, between the Company and Certain Investors (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on March 16, 2007).
10.58	Registration Rights Agreement, dated March 15, 2007, between the Company and Certain Investors (Incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on March 16, 2007).

10.59	Confidential Separation and Release Agreement executed as of March 6, 2007 between Marc R. Sportsman and the Company (Incorporated by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2007).
10.60	Letter Agreement, dated June 7, 2007, by and among Endocare, Inc., CryoCath Technologies Inc. and ATS Medical, Inc. (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on June 25, 2007).
10.61	License Agreement, dated June 28, 2007, by and between ATS Acquisition Corp. and CryoCath Technologies Inc. (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on July 5, 2007).
10.62	Manufacturing Agreement, dated June 28, 2007, by and between ATS Acquisition Corp. and CryoCath Technologies Inc. (Incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on July 5, 2007).
10.63	Termination Agreement, dated June 28, 2007, by and between ATS Medical, Inc. and CryoCath Technologies Inc. (Incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed on July 5, 2007).
10.64	Common Stock and Warrant Purchase Agreement, dated as of June 19, 2007, by and between ATS Medical, Inc. and Alta Partners VIII, L.P. (Incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on June 25, 2007).
10.65	Registration Rights Agreement, dated June 28, 2007, by and between ATS Medical, Inc. and Alta Partners VIII, L.P. (Incorporated by reference to Exhibit 10.5 to the Company's Current Report on Form 8-K filed on July 5, 2007).
10.66	Amendment, dated June 18, 2007, to the Loan and Security Agreement between Silicon Valley Bank and the Company dated July 28, 2004 (Incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed on June 25, 2007).
10.67**	2007 ATS Medical Management Incentive Compensation Plan (Incorporated by reference to Exhibit 10.9 of the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2007).
10.68	First Amendment, dated February 29, 2008, to the Loan and Security Agreement between Silicon Valley Bank and the Company dated July 28, 2004 (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on March 6, 2008).
10.69	Second Amendment, dated February 29, 2008, to the Loan and Security Agreement between Silicon Valley Bank and the Company dated July 28, 2004 (Incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on March 6, 2008).
10.70	Unconditional Guaranty, dated February 29, 2008, entered into by 3F Therapeutics and ATS Acquisition Corp., in favor of Silicon Valley Bank (Incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed on March 6, 2008).
10.71	Security Agreement, dated February 29, 2008, by and between Silicon Valley Bank, 3F Therapeutics, Inc. and ATS Acquisition Corp. (Incorporated by reference to Exhibit 10.4 to the Company's Current Report on Form 8-K filed on March 6, 2008).
10.72	Confidential Separation Agreement and Release, executed as of November 14, 2007, between Richard A. Curtis and ATS Medical, Inc., filed herewith.
21	List of Subsidiaries, filed herewith.
23.1	Consent of Grant Thornton LLP, filed herewith.
23.2	Consent of Ernst & Young LLP, filed herewith.

31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act, filed herewith.
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act, filed herewith.
32.1	Certification of the Chief Executive Officer pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, filed herewith.
32.2	Certification of the Chief Financial Officer pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, filed herewith.

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*Pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended, confidential portions of these exhibits have been deleted and filed separately with the Securities and Exchange Commission pursuant to a request for confidential treatment.

**Represents a management contract or compensatory plan or arrangement required to be filed as an exhibit pursuant to Item 15 of Form 10-K.

*** Exhibits and Schedules to the acquisition agreement have been omitted but will be provided supplementally to the Securities and Exchange Commission upon request.

SIGNATURES

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

Dated: March 14, 2008

ATS MEDICAL, INC.

By /s/ Michael D. Dale
Michael D. Dale
Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities indicated on March 14, 2008.

Signature	**Title**
/s/ Michael D. Dale Michael D. Dale	Chief Executive Officer, President and Chairman of the Board (principal executive officer)
/s/ Michael R. Kramer Michael R. Kramer	Chief Financial Officer (principal financial and accounting officer)
/s/ Steven M. Anderson Steven M. Anderson	Director
/s/ Robert E. Munzenrider Robert E. Munzenrider	Director
/s/ Guy P. Nohra Guy P. Nohra	Director
/s/ Eric W. Sivertson Eric W. Sivertson	Director
/s/ Theodore C. Skokos Theodore C. Skokos	Director

Report of Independent Registered Public Accounting Firm

Board of Directors and Shareholders
ATS Medical, Inc.

We have audited the accompanying consolidated balance sheets of ATS Medical, Inc. (the "Company") as of December 31, 2007 and 2006, and the related consolidated statements of operations, changes in shareholders' equity, and cash flows for each of the two years in the period ended December 31, 2007. Our audits of the basic consolidated financial statements included the financial statement schedule listed in the index appearing under Item 15. These financial statements and financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and financial statement schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of ATS Medical, Inc. as of December 31, 2007 and 2006, and the consolidated results of its operations and its cash flows for each of the two years in the period ended December 31, 2007 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the related financial statement schedule, when considered in relation to the basic consolidated financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

As discussed in Note 1 to the consolidated financial statements, effective January 1, 2006, the Company changed its method of accounting for share-based payments to adopt Statement of Financial Accounting Standards No. 123(R), *Share-Based Payment.*

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), ATS Medical, Inc.'s internal control over financial reporting as of December 31, 2007, based on criteria established in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) and our report dated March 12, 2008 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

GRANT THORNTON LLP

Minneapolis, Minnesota
March 12, 2008

Report of Independent Registered Public Accounting Firm

The Board of Directors and Shareholders
ATS Medical, Inc.

We have audited the accompanying consolidated consolidated statements of operations, changes in shareholders' equity and cash flows of ATS Medical, Inc. ("the Company") for the two year ended December 31, 2005. Our audit also included the financial statement schedule presented at Item 15. These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and schedule based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the 2005 consolidated financial statements referred to above present fairly, in all material respects, the consolidated results of its operations and its cash flows for the year ended December 31, 2005, in conformity with accounting principles generally accepted in the United States. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic consolidated financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

ERNST & YOUNG LLP

Minneapolis, Minnesota
March 6, 2006, except for
Note 7, as to which the
date is July 13, 2006

Report of Independent Registered Public Accounting Firm

Board of Directors and Shareholders
ATS Medical, Inc.

We have audited ATS Medical, Inc.'s (the "Company") internal control over financial reporting as of December 31, 2007, based on criteria established in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). 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.

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.

In our opinion, ATS Medical, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2007, based on criteria established in *Internal Control—Integrated Framework* issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheet of ATS Medical, Inc. as of December 31, 2007, and the related consolidated statements of operations, changes in shareholders' equity, and cash flows and financial statement schedule for the year then ended, and our report dated March 12, 2008 expressed an unqualified opinion on those financial statements and financial statement schedule, and included an explanatory paragraph related to the Company's change, effective January 1, 2006, in its method of accounting for share-based payments.

GRANT THORNTON LLP

Minneapolis, Minnesota
March 12, 2008

ATS Medical, Inc.

Consolidated Balance Sheets

(In Thousands, Except Share Data)

	December 31	
	2007	**2006**
Assets		
Current assets:		
Cash and cash equivalents	**$ 10,480**	$ 4,612
Short-term investments	**4,189**	6,092
	14,669	10,704
Accounts receivable, less allowance of $225 in 2007 and $537 in 2006	**11,186**	11,677
Inventories	**18,743**	18,782
Prepaid expenses	**1,143**	1,175
Total current assets	**45,741**	42,338
Leasehold improvements, furniture, and equipment, net	**7,739**	8,213
Goodwill	**15,175**	5,092
Other intangible assets	**35,604**	28,063
Other assets	**1,638**	2,134
Total assets	**$105,897**	$ 85,840
Liabilities and shareholders' equity		
Current liabilities:		
Current maturities of notes payable	**$ 2,457**	$ 1,133
Accounts payable	**4,794**	3,183
Accrued compensation	**2,361**	2,589
Accrued distributor liabilities	**791**	1,024
Warrant liability	**3,913**	-
Other accrued liabilities	**1,209**	1,433
Total current liabilities	**15,525**	9,362
Convertible senior notes payable, net of unamortized discounts and bifurcated derivatives of $4,964 in 2007 and $5,006 in 2006	**17,436**	17,394
Payable to CryoCath Technologies, Inc.	**1,742**	-
Notes payable	**6,143**	1,194
Deferred income taxes	**95**	-
Shareholders' equity:		
Common stock, $0.01 par value:		
Authorized shares – 100,000,000		
Issued and outstanding shares – 59,512,085 in 2007 and 40,320,487 in 2006	**595**	403
Additional paid-in capital	**196,108**	166,411
Accumulated deficit	**(132,577)**	(109,569)
Accumulated other comprehensive income	**830**	645
Total shareholders' equity	**64,956**	57,890
Total liabilities and shareholders' equity	**$105,897**	$ 85,840

The accompanying notes are an integral part of the consolidated financial statements.

ATS Medical, Inc.

Consolidated Statements of Operations

(In Thousands, Except Per Share Amounts)

	Year Ended December 31		
	2007	**2006**	**2005**
Net sales	**$49,587**	$40,449	$ 34,636
Cost of goods sold	**21,348**	19,568	22,828
Gross profit	**28,239**	20,881	11,808
Operating expenses:			
Sales and marketing	**24,633**	21,008	18,948
Research and development	**7,546**	3,381	1,733
Acquired in-process research and development	**3,500**	14,400	–
Distributor termination expense	**–**	733	–
General and administrative	**10,417**	8,786	7,314
Amortization of intangibles	**2,516**	106	–
Intangible asset impairment	**755**	–	–
Total operating expenses	**49,367**	48,414	27,995
Operating loss	**(21,128)**	(27,533)	(16,187)
Interest income	**720**	725	323
Interest expense	**(2,542)**	(2,394)	(661)
Other income, net	**61**	1,528	2,131
Net loss before income taxes	**(22,889)**	(27,674)	(14,394)
Income tax expense	**119**	–	–
Net loss	**$(23,008)**	$(27,674)	$(14,394)
Net loss per share:			
Basic and diluted	**$ (0.44)**	$ (0.83)	$ (0.46)
Weighted average number of shares outstanding:			
Basic and diluted	**52,589**	33,537	31,009

The accompanying notes are an integral part of the consolidated financial statements.

ATS Medical, Inc.

Consolidated Statement of Changes in Shareholders' Equity

(In Thousands)

	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Unearned Compensation	Total
Balance at December 31, 2004	30,890	$ 309	$136,562	$ (67,501)	$ 95	$ (24)	$ 69,441
Stock issued under the Employee Stock Purchase Plan	120	1	347	–	–	–	348
Stock options exercised	104	1	185	–	–	–	186
Warrants issued in connection with sale of convertible debt securities	–	–	1,522	–	–	–	1,522
Unearned compensation related to stock options and awards	–	–	1,127	–	–	(1,127)	–
Amortization of unearned compensation	–	–	–	–	–	585	585
Comprehensive loss:							
Change in foreign currency translation	–	–	–	–	(159)	–	(159)
Net loss for the year	–	–	–	(14,394)	–	–	(14,394)
Comprehensive loss							(14,553)
Balance at December 31, 2005	31,114	311	139,743	(81,895)	(64)	(566)	57,529
Stock issued under the Employee Stock Purchase Plan	104	1	217	–	–	–	218
Stock options exercised	48	–	44	–	–	–	44
Stock issued in connection with the acquisition of 3F Therapeutics	9,000	90	26,010	–	–	–	26,100
Stock compensation expense	–	–	1,103	–	–	–	1,103
Stock issuance costs	–	–	(45)	–	–	–	(45)
Reclassification of unearned compensation in accordance with the adoption of SFAS 123R	–	–	(566)	–	–	566	–
Restricted stock units issued	54	1	(95)	–	–	–	(94)
Comprehensive loss:							
Change in foreign currency translation	–	–	–	–	709	–	709
Net loss for the year	–	–	–	(27,674)	–	–	(27,674)
Comprehensive loss							(26,965)
Balance at December 31, 2006	40,320	403	166,411	(109,569)	645	–	57,890
Stock issued under the Employee Stock Purchase Plan	**130**	**2**	**208**	–	–	–	**210**
Stock options exercised	**524**	**5**	**475**	–	–	–	**480**
Stock issued in private placement sales, net of offering costs	**17,925**	**179**	**30,382**	–	–	–	**30,561**
Stock issued for purchase of intangible assets	**224**	**2**	**498**	–	–	–	**500**
Warrant issued in connection with private placement stock sale	–	–	**(3,261)**	–	–	–	**(3,261)**
Stock compensation expense	–	–	**1,454**	–	–	–	**1,454**
Restricted stock units issued	**389**	**4**	**(59)**	–	–	–	**(55)**
Comprehensive loss:							
Change in foreign currency translation	–	–	–	–	**185**	–	**185**
Net loss for the year	–	–	–	**(23,008)**	–	–	**(23,008)**
Comprehensive loss							**(22,823)**
Balance at December 31, 2007	**59,512**	**$ 595**	**$196,108**	**$ (132,577)**	**$ 830**	**$ –**	**$ 64,956**

The accompanying notes are an integral part of the consolidated financial statements.

ATS Medical, Inc.

Consolidated Statements of Cash Flows

(In Thousands)

	Year Ended December 31		
	2007	**2006**	**2005**
Operating activities:			
Net loss	**$(23,008)**	$(27,674)	$(14,394)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	**4,622**	1,924	1,563
Loss on disposal of equipment	**–**	26	35
Non-cash interest expense	**546**	463	138
Stock based compensation	**1,454**	1,103	585
Change in value of warrant liability and derivative liability bifurcated from convertible senior notes	**554**	(1,528)	(2,131)
In-process research and development related to acquisitions	**3,500**	14,400	–
Impairment of intangibles	**755**	–	–
Deferred income taxes	**95**	–	–
Lower of cost or market adjustment	**–**	–	700
Changes in operating assets and liabilities, net of acquisition:			
Accounts receivable	**1,117**	1,010	(2,560)
Inventories	**669**	2,845	5,317
Accounts payable and accrued expenses	**121**	(2,075)	292
Other	**32**	(324)	(163)
Net cash used in operating activities	**(9,543)**	(9,830)	(10,618)
Investing activities:			
Purchases of short-term investments	**(4,140)**	(10,326)	(5,503)
Maturities of short-term investments	**6,043**	9,336	8,106
Payments for business acquisitions	**(21,074)**	–	–
Business acquisition costs, net of cash acquired	**(1,791)**	(717)	–
Payments for other intangibles	**(277)**	(521)	(1,817)
Purchases of leasehold improvements, furniture, and equipment	**(748)**	(1,208)	(2,278)
Other	**(36)**	–	–
Net cash used in investing activities	**(22,023)**	(3,436)	(1,492)
Financing activities:			
Proceeds from sale of convertible senior notes, warrants and embedded derivatives, net of financing costs	**–**	–	20,817
Advances on bank notes payable	**8,600**	1,500	–
Payments on bank notes payable	**(2,327)**	(909)	(764)
Net proceeds from issuance of common stock	**31,196**	123	534
Other	**168**	–	–
Net cash provided by financing activities	**37,637**	714	20,587
Effect of exchange rate changes	**(203)**	544	(159)
Increase (decrease) in cash and cash equivalents	**5,868**	(12,008)	8,318
Cash and cash equivalents at beginning of year	**4,612**	16,620	8,302
Cash and cash equivalents at end of year	**$ 10,480**	$ 4,612	$ 16,620
Supplemental cash flow information:			
Net cash paid during the year for interest	**$ 2,320**	$ 1,642	$ 238
Significant non-cash transactions:			
Issuance of common stock for acquisition of intangible assets	**500**	–	–
Assumption of liabilities in connection with asset acquisition	**2,429**	–	–
License agreement intangible asset tendered in asset acquisition	**1,765**	–	–
Reclassification of unearned compensation to additional paid-in capital in accordance with the adoption of SFAS 123R	–	566	–
Reclassification of convertible note derivative liability against related discount	–	(1,627)	–
Stock issued for acquisition	–	26,100	–

The accompanying notes are an integral part of the consolidated financial statements.

1. Summary of Significant Accounting Policies

Business Activity

ATS Medical, Inc. (the "Company") develops, manufactures, and markets medical devices. The Company operates in one business segment and its interest lies with devices used by cardiovascular surgeons in the cardiac surgery operating theater. Currently, the Company participates in the markets for mechanical and tissue replacement heart valves, heart valve repair, the surgical treatment of atrial fibrillation, and other cardiac surgery devices, tools and accessories.

The Company has recognized net losses of approximately $14.4 million in 2005, $27.7 million in 2006, and $23.0 million in 2007 and has an accumulated deficit of $132.6 million at December 31, 2007. The Company believes it has sufficient cash resources to meet its cash needs through 2008.

Principles of Consolidation

The consolidated financial statements include the accounts of the Company and wholly owned sales and distribution subsidiaries in the United States, France, Germany and Austria (since its inception in July 2006), after elimination of intercompany accounts and transactions. Effective January 1, 2006, the U.S. sales and distribution subsidiary was merged into ATS Medical, Inc.

Cash Equivalents

The Company considers all highly liquid investments with maturities of three months or less at the time of purchase to be cash equivalents. Cash equivalents are carried at cost which approximates market value and include $1.5 million and $0.9 million in primarily Euro-denominated balances in foreign banks at December 31, 2007 and 2006, respectively.

Short-Term Investments

Short-term investments are comprised of debt securities and are classified as available-for-sale. Available-for-sale securities are carried at cost which approximates fair value.

Accounts Receivable

Credit is extended based on evaluation of a customer's financial condition and, generally, collateral is not required. Accounts receivable are generally due within 30-180 days and are stated at amounts due from customers net of an allowance for doubtful accounts. Accounts receivable outstanding longer than the contractual payment terms are considered past due. The Company determines its allowance by considering a number of factors, including the length of time trade accounts receivable are past due, the Company's previous loss history, the customer's current ability to pay its obligation to the Company, and the condition of the general economy and the industry as a whole. The Company writes off accounts receivable when they become uncollectible, and payments subsequently received on such receivables are credited to the allowance for doubtful accounts.

Inventories

The Company carries and relieves inventories at the lower of cost (first-in, first-out basis) or market. Prior to 2006, write-downs were recorded on a portion of its inventories to provide for the lower of cost or market value expected to be realized on future sales in lesser-developed countries. Write-downs totaled $0.7 million in 2005. These write-downs were included in cost of goods sold in the statement of operations.

At December 31, 2007 and 2006, inventories consisted of the following (in thousands):

	2007	2006
Raw materials	$ 3,655	$ 4,615
Work-in-process	2,920	2,948
Finished goods	12,168	11,219
	$18,743	$18,782

Other Assets

Included in other assets is deferred financing costs (unamortized balance of $0.9 million at December 31, 2007) in connection with the 6% Convertible Senior Notes, disclosed in Note 7 below, which are being amortized over five years. Amortization of deferred financing costs will be approximately $0.3 million per year for 2008 through 2010.

Leasehold Improvements, Furniture, and Equipment

Leasehold improvements, furniture, and equipment are stated at cost. Depreciation is provided using the straight-line method over the estimated useful lives of the assets as follows:

Furniture and fixtures	7 years
Equipment	5 to 17 years
Computers	2 years

Leasehold improvements are amortized over the remaining related lease term or estimated useful life, whichever is shorter.

Indefinite-Lived Intangible Assets

Indefinite-lived intangible assets include technology licenses and agreements and goodwill (see Note 6) and are carried at cost. The Company applies Statement of Financial Accounting Standard ("SFAS") No. 142, *Goodwill and Other Intangible Assets,* to its intangible assets, which prohibits the amortization of intangible assets with indefinite useful lives and requires that these assets be reviewed for impairment at least annually. Management reviews indefinite-lived intangible assets for impairment annually as of the last day of the second quarter, or more frequently if a change in circumstances or occurrence of events suggests the remaining value may not be recoverable. The test for impairment requires management to make estimates about fair-value which are based either on the expected undiscounted future cash flows or on other measures of value such as the market capitalization of the Company. If the carrying amount of the assets is greater than the measures of fair value, impairment is considered to have occurred and a write-down of the asset is recorded. Management completed the annual impairment tests in the second quarter of 2007 and determined that the Company's intangible assets, with the exception of the ErySave license agreement intangible discussed in Note 6, were not impaired.

Revenue Recognition

A significant portion of the Company's revenue in the United States and direct European countries is generated from consigned inventory maintained at hospitals or with field representatives. In these situations, revenue is recognized at the time that the product has been implanted or used. In all other instances, revenue is recognized, net of any applicable sales and VAT taxes invoiced, at the time product is shipped. Certain independent distributors in select international markets receive rebates against invoiced sales amounts. In these situations, the Company accrues for these rebates at the time of the original sale. These accrued rebates were $0.01 and $0.05 million as of December 31, 2007 and 2006, respectively, and are treated as a reduction of revenue.

The Company includes shipping and handling costs, net of shipping charges invoiced to customers, in cost of goods sold.

Use of Estimates

The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. Actual results could differ from those estimates.

Advertising and Promotional Costs

Advertising and promotional costs are charged to operations in the year incurred. Advertising and promotional costs charged to operations during 2007, 2006 and 2005 were $0.1 million, $0.2 million and $0.1 million, respectively.

Foreign Currency Translation

The financial statements for the Company's European operations are maintained in Euros. All assets and liabilities of the Company's international subsidiaries are translated to U.S. dollars at year-end exchange rates, while the statement of operations is translated at average exchange rates in effect during the year. Translation adjustments arising from the use of differing exchange rates are included in accumulated other comprehensive income (loss) in shareholders' equity. Net gains on foreign currency transactions were $0.6 million in 2007 and were not significant during 2006 or 2005. Foreign currency transaction gains/losses includes gains/losses on the portion of intercompany payables (denominated in U.S. dollars) determined to be short-term in nature, while gains/losses on the long-term portion of intercompany payables are recognized in accumulated other comprehensive income (loss).

The Company has reclassified foreign exchange transaction gains originally recorded as a reduction of sales and marketing expenses in the first, second and third quarters of 2007 to other income. These reclassifications totaled $0.2 million and had no impact on 2007 quarterly net losses as previously reported.

Income Taxes

The Company accounts for income taxes under SFAS No. 109, *Accounting for Income Taxes*. Deferred taxes are provided on an asset and liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carry forwards and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the amounts of assets and liabilities recorded for income tax and financial reporting purposes. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. Deferred tax assets and liabilities are adjusted for the effects of changes in tax laws and rates on the date of enactment.

The Company adopted the provisions of Financial Accounting Standards Board ("FASB") Interpretation No. 48, *Accounting for Uncertainty in Income Taxes* ("FIN 48"), on January 1, 2007. Previously, the Company had accounted for tax contingencies in accordance with SFAS No. 5, *Accounting for Contingencies*. As required by FIN 48, which clarifies SFAS No. 109, *Accounting for Income Taxes*, the Company recognizes the financial statement benefit of a tax position only after determining that the relevant tax authority would more likely than not sustain the position. For tax positions meeting the more likely than not threshold, the amount recognized in the financial statements is the largest benefit that has a greater than 50 percent likelihood of being realized upon ultimate settlement with the relevant tax authority. At the adoption date, the Company applied FIN 48 to all tax positions for which the statute of limitations remained open.

Warranties

The Company adheres to FASB Interpretation No. 45, *Guarantor's Accounting and Disclosure Requirements for Guarantees, Including Indirect Indebtedness to Others* ("FIN 45"). FIN 45 requires disclosures concerning the Company's obligations under certain guarantees. The Company sells service agreements on cryoablation consoles, for which it defers the related service revenue and recognizes over the service period. Revenue and warranty costs under these service agreements has not been significant.

Stock-Based Compensation

The Company has stock-based employee compensation plans, which are described more fully in Note 9. The Company accounts for its stock-based employee compensation plans under the recognition and measurement principles of SFAS No. 123 (Revised 2004), *Share-Based Payment* ("Statement 123(R)"), which requires all share-based payments to be recognized in the income statement based on their fair values. Pro forma disclosure is no longer an alternative.

Statement 123(R) was adopted by the Company on January 1, 2006 using the modified prospective transition method, Accordingly, the Company has not restated its consolidated financial statements for prior periods. Under this transition method, stock-based compensation expense for 2006 includes expense related to the Company's stock-based compensation awards granted in 2006 and those awards granted prior to, but not yet vested as of, January 1, 2006, based on the grant-date fair value estimated in accordance with the provision of SFAS No. 123. Stock-based compensation expense for all grants and awards made on or after January 1, 2006 are based on the grant-date fair value estimated in accordance with the provisions of Statement 123(R).

Net Loss Per Share

Basic net loss per share is computed by dividing net loss by the weighted average shares outstanding and excludes any dilutive effects of restricted stock units, options, warrants, and convertible securities. For all periods presented, diluted net loss per share is equal to basic net loss per share because the effect of including potential common shares for stock options outstanding would have been anti-dilutive. Had net income been achieved, approximately 620,000, 860,000, and 1,214,000 shares of common stock equivalents would have been included in the computation of diluted net income per share for the years ended December 31, 2007, 2006 and 2005, respectively.

Convertible Debt and Derivative Instruments

The Company accounts for embedded derivatives related to its convertible senior notes and certain common stock warrants under SFAS No. 133, *Accounting for Derivative Instruments and Hedging Activities,* and related Emerging Issues Task Force ("EITF") and Securities and Exchange Commission ("SEC") rules, which require certain embedded derivative financial instruments to be bifurcated from the debt or equity agreement and accounted for as a liability. The Company determines the value of these derivatives by making judgments and estimates of the probability that future conditions giving rise to such derivatives may occur.

2. Acquisitions

Acquisition of Assets from CryoCath Technologies, Inc.

On June 28, 2007, the Company completed the acquisition of the cryoablation surgical device business of CryoCath Technologies, Inc. ("CryoCath"). Pursuant to the Asset Purchase Agreement between the Company and CryoCath, the Company paid CryoCath $22.0 million at closing and agreed to pay an additional $2.0 million twenty-four months after closing. The Company also agreed to pay up to an additional $6.0 million in contingent payments, $2.0 million of which is contingent on the successful transition of manufacturing from CryoCath to the Company and $4.0 million of which is contingent upon the Company reaching certain levels of sales in 2009 and 2010 of SurgiFrost® XL, a product line in development.

The Company and CryoCath also entered into 1) a License Agreement, which provides the Company with an exclusive, perpetual, royalty-free, worldwide license to use CryoCath's intellectual property related to the cryoablation surgical device business, 2) a Manufacturing Agreement, pursuant to which CryoCath has agreed to manufacture, assemble and supply products relating to the cryoablation surgical business to the Company for a period of up to one year, and 3) a Termination Agreement, which terminated the Distribution Agreement and Agent Agreement, each dated November 9, 2004, between the Company and CryoCath.

Purchase Price. The Company has accounted for the CryoCath asset acquisition as a purchase under U.S. generally accepted accounting principles. Under the purchase method of accounting, the assets and liabilities acquired were recorded as of the acquisition date, at their respective fair values, and consolidated with those of the Company. The purchase price allocation is based upon preliminary estimates of the fair value of assets acquired and liabilities assumed. The Company is finalizing its valuation of certain assets, primarily the valuation of acquired intangible assets. The purchase price allocation will be finalized once the Company has all the necessary information to complete its estimate, but no later than one year from the acquisition date. The valuation requires the use of significant assumptions and estimates. Critical estimates included, but were not limited to, future expected cash flows and the applicable discount rates. These estimates were based on assumptions that the Company believes to be reasonable. However, actual results may differ from these estimates.

The preliminary purchase price is as follows as of December 31, 2007 (amounts in thousands):

Cash paid (includes $926 post-closing purchase price adjustment)	$21,074
License payments made under prior Distribution and Agency Agreements	1,765
Non-contingent cash payment to be made (discounted to present value using discount rate of 9.25%)	1,663
Acquisition-related costs	1,791
Total preliminary purchase price	$26,293

Preliminary Purchase Price Allocation. The following table summarizes the preliminary purchase price allocation for the CryoCath asset acquisition as of December 31, 2007 (amounts in thousands):

Current assets	$ 951
Fixed assets	761
Definite-lived intangible assets subject to amortization	11,800
Goodwill	10,047
Acquired in-process research and development	3,500
Current liabilities	(766)
Total preliminary purchase price allocation	$26,293

The excess of the purchase price over the fair value of net tangible assets acquired was allocated to specific intangible asset categories and in-process research and development as follows:

(in thousands)	Amount Assigned	Weighted Average Amortization Period
Definite-lived intangible assets:		
Existing technology – core	$ 4,400	16 years
Existing technology – developed	5,600	5 years
Distributor relationships	1,500	12 years
Product trademarks	300	10 years
Total definite-lived intangible assets	$11,800	10 years
Goodwill	$10,047	
Acquired in-process research and development	$ 3,500	

The Company believes the estimated intangible assets so determined represent the fair value at the date of acquisition. The Company used the income approach to determine the fair value of the amortizable intangible assets. The product trademarks amortization period was subsequently reduced to 15 months in the fourth quarter of 2007, due to changing product trade names and trademarks.

The $3.5 million acquired in-process research and development ("IPR&D") associated with the acquisition relates to SurgiFrost XL, a product line in development to enable less invasive stand alone or sole therapy solutions to treat atrial fibrillation. This IPR&D was recorded as a non-recurring charge to operations for the year ended December 31, 2007. The Company used the income approach to determine the fair value of IPR&D, applying a risk adjusted discount rate of 30% to the development project's projected cash flows.

Acquisition of 3F Therapeutics, Inc.

On September 29, 2006, the Company completed the acquisition of all the voting and non-voting stock of 3F Therapeutics, Inc. ("3F"), a privately-held medical device company specializing in manufacturing heart tissue valve replacement components. The Company views the acquisition of 3F as a significant step in executing its vision of obtaining a leadership position in all segments of the cardiac surgery market.

The acquisition was consummated pursuant to an agreement and plan of merger dated January 23, 2006, as amended (the "Merger Agreement"). Under the terms of the Merger Agreement, upon closing, the Company paid each 3F stockholder its pro-rata portion of an initial payment of 9 million shares of the Company's common stock, subject to certain adjustments. The Company deposited 1,425,000 shares of the closing payment in escrow to be held for at least 18 months ("escrow period") after closing of the merger to cover potential indemnification claims and certain contingencies. At the conclusion of the escrow period, the balance of the escrow account would be distributed pro-rata to the former holders of 3F capital stock. On February 27, 2008, the Company notified 3F stockholders that the escrow shares would not be distributed at the end of the escrow period and would remain in escrow pending the final outcome of certain shareholder litigation involving 3F (see "Abbey Litigation" in Note 18 of these Notes to Consolidated Financial Statements). In addition to the initial closing payment, the Company is obligated to make additional contingent payments to 3F stockholders of up to 10 million shares of the Company's common stock with 5 million shares issuable upon obtaining each of the CE mark and FDA approval of certain key products on or prior to December 31, 2013. Milestone share payments may be accelerated upon completion of certain transactions involving these key products. These contingent payments are subject to certain rights of offset for indemnification claims and certain other events.

Purchase Price. The Company accounted for the acquisition of 3F as a purchase under U.S. generally accepted accounting principles. Under the purchase method of accounting, the assets and liabilities of 3F were recorded as of the acquisition date, at their respective fair values, and consolidated with those of the Company. The purchase price allocation is based upon estimates of the fair value of assets acquired and liabilities assumed. These valuations require the use of significant assumptions and estimates. Critical estimates included, but were not limited to, future expected cash flows and related applicable discount rates. These estimates were based on assumptions that the Company believes to be reasonable. However, actual results may differ from these estimates.

The purchase price for the acquisition of 3F was as follows (amounts in thousands):

Fair value of ATS common stock	$26,100
Other estimated acquisition-related costs	3,316
	$29,416

Purchase Price Allocation. The following table summarizes the purchase price allocation for the 3F acquisition (amounts in thousands):

Cash	$ 2,599
Other current assets	2,530
Intangible assets subject to amortization	7,150
Goodwill	5,128
Other long-term assets	519
Acquired in-process research and development	14,400
Current liabilities	(2,910)
Total preliminary purchase price allocation	$29,416

The excess of the purchase price over the fair value of net tangible assets acquired was allocated to specific intangible asset categories and in-process research and development as follows:

(in thousands)	Amount Assigned	Weighted Average Amortization Period
Definite-lived intangible assets:		
Technology – core	$ 5,200	20 years
Technology – developed	700	9 years
Tradenames and trademarks	1,200	15 years
Other	50	7 years
Total definite-lived intangible assets	$ 7,150	18 years
Goodwill	$ 5,128	
Acquired in-process research and development	$14,400	

The Company believes that the estimated intangible assets so determined represent the fair value at the date of acquisition. The Company used the income approach to determine the fair value of the amortizable intangible assets.

The $14.4 million acquired IPR&D associated with the acquisition relates to the Enable sutureless tissue valve product line and has been recorded as a non-recurring charge to operations for the year ended December 31, 2006. The Company used the income approach to determine the fair value of IPR&D, applying a risk adjusted discount rate of 37% to the development project's projected cash flows. Enable clinical trials have begun in Europe. European market approval is anticipated in 2009 or 2010 with United States approval to follow approximately 1-2 years later. The development effort is subject to risks associated with the ultimate clinical efficacy of the Enable product line as well as the results and high costs of the clinical trials.

The results of 3F's operations since the acquisition have been included in the consolidated financial statements.

Pro Forma Results of Operations

The following unaudited pro forma financial information presents a summary of consolidated results of operations of the Company as if the acquisitions of CryoCath's surgical cryoablation business and of 3F Therapeutics had occurred at the beginning of the earliest period presented. The historical consolidated financial information has been adjusted to give effect to pro forma events that are directly attributable to the acquisitions and are factually supportable. The unaudited pro forma condensed consolidated financial information is presented for informational purposes only. The pro forma information is not necessarily indicative of what the results of operations actually would have been had the acquisitions been completed at the dates indicated. In addition, the unaudited pro forma condensed consolidated financial information does not purport to project the future operating results of the Company after completion of the acquisitions.

For purposes of preparing the unaudited pro forma financial information for the year ended December 31, 2007, CryoCath's surgical cryoablation business unaudited Statement of Sales and Direct Operating Expenses for the six-month period ended March 31, 2007 was combined with the Company's consolidated Statement of Operations for the year ended December 31, 2007, which includes six months of post-CryoCath asset acquisition operating results and a full year of post-3F acquisition operating results. For the year ended December 31, 2006, CryoCath's surgical cryoablation business audited Statement of Sales and Direct Operating Expenses for the fiscal year ended September 30, 2006 was combined with the unaudited pro forma combined condensed statement of operations of the Company and 3F for the year ended December 31, 2006, which includes three months of post-3F acquisition operating results. For the year ended December 31, 2005, CryoCath's surgical cryoablation business audited Statement of Sales and Direct Operating Expenses for the fiscal year ended September 30, 2006 was combined with the unaudited pro

forma combined condensed statement of operations of the Company and 3F for the year ended December 31, 2005. All periods used in preparing the unaudited pro forma financial information represent the most recent financial information available for each entity. The CryoCath financial statements referenced above have been summarized in a format similar to the financial statements of the Company and translated to U.S. dollars in accordance with U.S. generally accepted accounting principles.

	Year Ended December 31,		
(in thousands, except per share data)	**2007**	2006	2005
Net sales	**$ 53,951**	$ 48,383	$ 42,814
License revenue	**-**	11,031	8,618
Total revenue	**$ 53,951**	$ 59,414	$ 51,432
Net loss	**$(19,238)**	$(16,456)	$(22,093)
Net loss per share – basic and diluted	**$ (0.37)**	$ (0.33)	$ (0.44)

License revenue relates to license, supply and training agreements that 3F had with Edwards Lifesciences (Edwards). The Edwards agreements were terminated in the fourth quarter of 2006 and no additional license revenue will be recognized.

The unaudited pro forma net losses include 1) amortization of purchased intangible assets acquired in both acquisitions, 2) an increase in depreciation expense related to the step-up of fixed assets to fair value, 3) adjustments to eliminate intercompany sales, commission and distribution rights income and commission expense resulting from sales of CryoCath products, 4) the elimination of certain license amortization recorded by the surgical cryoablation division of Cryocath which does not apply to the combined entity, 5) the estimated impact of the ongoing supply arrangement between CryoCath and ATS Medical and 6) estimated additional interest expense on a pro forma basis due to the additional bank borrowing completed to finance the CryoCath asset acquisition.

The unaudited pro forma financial information excludes non-recurring IPR&D charges of $3.5 million recorded in 2007 in connection with the CryoCath asset acquisition and $14.4 million recorded in 2006 in connection with the acquisition of 3F.

3. Short-Term Investments

At December 31, 2007 and 2006, the cost of short-term investments held by the Company of $4.2 million and $6.1 million, respectively, had maturity dates of approximately one year or less, approximated their fair value and consisted of the following (in thousands):

	2007	**2006**
Commercial paper	**$4,189**	$1,940
Corporate bonds	**-**	1,879
Certificates of deposit	**-**	-
U.S. agency	**-**	2,273
	$4,189	$6,092

4. Leasehold Improvements, Furniture, and Equipment, net

At December 31, 2007 and 2006, leasehold improvements, furniture, and equipment consisted of the following (in thousands):

	2007	2006
Furniture and fixtures	$ 608	$ 556
Equipment	12,310	10,967
Leasehold improvements	3,491	3,473
Construction in progress	632	542
	17,041	15,538
Less accumulated depreciation	9,302	7,325
	$ 7,739	$ 8,213

5. Private Placements of Common Stock

In March 2007, the Company sold 8,125,000 shares of its common stock to certain institutional investors and received $15.3 million, net of offering costs. The private placement included the issuance of warrants to purchase 3,250,000 shares of the Company's common stock at an exercise price of $2.40 per share, subject to adjustment upon certain events. The warrants became exercisable in September 2007 and expire on March 15, 2012.

In June 2007, the Company sold to Alta Partners VIII, L.P. ("Alta") 9,800,000 shares of its common stock and a seven-year warrant to purchase up to 1,960,000 shares of Common Stock at an exercise price of $1.65 per share. Issuance of shares related to the warrant is subject to shareholder approval at the 2008 annual meeting of shareholders. If shareholder approval is not obtained, Alta will be eligible to receive a cash payment, as further described below. The Company received $15.3 million, net of offering costs. In connection with the stock sale, Guy P. Nohra, a founder and one of three managing directors of the general partner of Alta, was appointed to the Company's Board of Directors.

Under the terms of the Alta warrant, if the Company does not receive approval of its shareholders at the Company's 2008 annual meeting of shareholders (or any subsequent annual meeting) to issue shares of common stock to Alta upon exercise of the warrant, then the warrant will become exercisable on June 28, 2008, and Alta will be entitled to receive, upon exercise of the warrant, cash from the Company in an amount equal to the difference between the then-current fair market value of the shares underlying the warrant and the aggregate exercise price of the warrant. If the Company receives shareholder approval to issue shares of common stock upon exercise of the warrant, then the warrant will become exercisable upon receipt of such shareholder approval and Alta will be entitled to receive shares of common stock upon exercise of the warrant. Accordingly, the fair value of the warrant has been recorded as a liability on the date of issuance and marked to market at each quarter-end, resulting in a change in valuation charge to other expense of $0.7 million for the year ended December 31, 2007. If the Company receives shareholder approval to issue shares of common stock upon exercise of the warrant, the liability will be marked-to-market through the date of shareholder approval and the remaining liability balance will be credited to additional paid-in capital.

6. Goodwill and Other Intangible Assets

Goodwill and intangible assets activity is summarized as follows (in thousands):

	Assets Subject to Amortization				Assets Not Subject to Amortization		
	3F Technology & Trademarks	CryoCath Technology & Trademarks	Carbon Technology License	Other Technology, Development & Licensing Agreements	CryoCath Agency & Distribution Agreements	Goodwill	Total
Balance at December 31, 2005	-	-	$18,500	$ 450	$1,555	-	$20,505
Acquisition of 3F	$ 7,150	-	-	-	-	$ 5,092	12,242
Cash Payments		-	-	304	210	-	514
Amortization	(106)	-	-	-	-	-	(106)
Balance at December 31, 2006	7,044	-	18,500	754	1,765	5,092	33,155
Acquisition of CryoCath surgical cryoablation assets	-	**$11,800**	-	-	**(1,765)**	**10,047**	**20,082**
Cash Payments	-	-	-	**277**	-	**36**	**313**
Stock Payments	-	-	-	**500**	-	-	**500**
Amortization	**(425)**	**(841)**	**(1,233)**	**(17)**	-	-	**(2,516)**
Asset impairment write-off	-	-	-	**(755)**	-	-	**(755)**
Balance at December 31, 2007	**$ 6,619**	**$10,959**	**$17,267**	**$ 759**	**$ -**	**$15,175**	**$50,779**

Aggregate amortization of intangible assets over the next five years is as follows (in thousands):

2008	$ 3,468
2009	3,248
2010	3,233
2011	3,189
2012	2,629
	$ 15,767

Intangible Asset Purchases

As disclosed in Note 2 above, the Company acquired goodwill and certain other intangible assets in connection with the June 2007 acquisition of the surgical cryoablation business of CryoCath and the September 2006 acquisition of 3F.

In January 2007, the Company issued 224,416 shares of its common stock pursuant to the exercise of its option to purchase certain assets of EM Vascular, Inc. ("EM Vascular"), under a May 2005 Option and Asset Purchase Agreement ("Option Agreement"). The payment in shares was at the option of the Company and was in lieu of a $0.5 million cash payment. The most significant asset acquired as part of this purchase is technology that may potentially allow for a non-invasive, non-pharma therapy for the treatment of such disorders as atherosclerotic plaque and blood hyper-cholesterolemia. Under the terms of the Option Agreement, the Company will also be obligated to make additional contingent payments to EM Vascular of up to $2.2 million in the form of ATS common stock upon the attainment of certain milestone events and to pay royalties on applicable product sales.

In September 2007, the Company acquired a fully paid-up license for $0.2 million related to a thoracic port surgical device which the Company has been selling and for which the Company had previously been paying royalties based on product sales.

In October 2007, the Company acquired certain patent rights and intellectual property related to a heart valve holder, a heart valve folding and delivery device, and other ancillary devices. The Company paid an up-front license fee of $0.1 million and will be obligated to make royalty payments on future sales of products related to certain of the patent rights transferred.

Intangible Asset Impairment

The Company made licensing fee and development milestone payments to ErySave AB ("ErySave"), a Swedish research firm, under an exclusive development and licensing agreement, executed in 2004, for worldwide rights to ErySave's PARSUS filtration technology for cardiac surgery procedures. In July 2007, the Company was informed that ErySave was in the process of declaring bankruptcy and they could not continue development work. Accordingly, the $0.8 million ErySave license payments intangible asset was written off during the year ended December 31, 2007.

Change in Status of Indefinite-lived Intangible Asset

The Company holds an exclusive, worldwide right and license to use CarboMedics, Inc.'s ("CarboMedics", f/k/a Sulzer CarboMedics) pyrolytic carbon technology. The license was originally obtained in 1999 and had a carrying value of $18.5 million at December 31, 2006. Based on the Company's periodic review of its indefinite-lived intangibles, the Company determined that this carbon technology license has a finite life and began amortizing this asset over a 15-year life commencing January 1, 2007. The Company expects amortization expense on this technology license to be approximately $1.2 million per year through 2021.

Agency & Distribution Agreements Intangible Tendered in Asset Acquisition

In November 2004, the Company signed an exclusive agency agreement and a distribution agreement with CryoCath. The agreements granted the Company co-promotion rights in the United States as well as exclusive distribution rights in the rest of the world including Europe and Asia for CryoCath's cryotherapy products. The Company made $1.8 million in agency and distribution license fee payments to CryoCath during 2005 and 2006. In connection with the June 2007 acquisition of the cryoablation surgical device business of CryoCath disclosed in Note 2, these agency and distribution license fee payments were tendered and included as a part of the purchase price of the CryoCath assets.

Goodwill

SFAS No. 142, *Goodwill and Other Intangible Assets*, guides the accounting treatment for the Company's intangible assets. Under SFAS 142, the goodwill acquired in the CryoCath asset and 3F acquisitions is not subject to amortization, but must be analyzed for impairment on an annual basis. The goodwill recognized in connection with the CryoCath asset acquisition is tax deductible over a 15-year period, while the goodwill recognized in connection with the 3F acquisition is not tax deductible.

7. Long-Term Debt

Convertible Notes Payable

In October 2005, the Company sold a combined $22.4 million aggregate principal amount of 6% Convertible Senior Notes due 2025 ("Notes"), warrants to purchase 1,344,000 shares of the Company's common stock ("Warrants"), and embedded derivatives. Interest is payable under the Notes each April and October.

The Warrants are exercisable at $4.40 per share and expire in 2010. The Company has reserved 105% of the shares necessary for the exercise of the warrants. The Warrants were valued at $1.13 per share using the Black-Scholes valuation model. The total value of the Warrants on the date of issuance was $1.5 million and was recorded as a discount on the Notes and is being amortized to interest expense over the 20 year life of the Notes using the effective interest method.

The Notes are convertible into common stock at any time at a fixed conversion price of $4.20 per share, subject to adjustment under certain circumstances including, but not limited to, the payment of cash

dividends on common stock. If fully converted, the Notes would convert into 5,333,334 shares of the Company's common stock. At the date of issuance of the Notes, the Company had only 19,222 authorized shares of its common stock available for the Note holders if conversion was elected. This shortfall in authorized shares resulted in the Company having to recognize an embedded derivative as explained further in this note.

The Note holders have the right to require the Company to repurchase the Notes at 100% of the principal amount plus accrued and unpaid interest on October 15 in 2010, 2015 and 2020 or in connection with certain corporate change of control transactions. If the Note holders elect to convert the Notes prior to October 15, 2010 in connection with certain corporate change of control transactions, the Company will increase the conversion rate for the Notes surrendered for conversion by a number of additional shares based on the stock price of the Company on the date of the change of control.

The Company has the right to redeem the Notes at 100% of the principal amount plus accrued and unpaid interest at any time on or after October 20, 2008. At any time prior to maturity, the Company may also elect to automatically convert some or all of the Notes into shares of its common stock if the closing price of the common stock exceeds $6.40 for a period as specified in the indenture. If an automatic conversion of the Notes occurs prior to October 15, 2008, the Company will make an additional payment to the Note holders equal to three full years of interest, less any interest actually paid or provided for prior to the conversion date. This payment can be made, at the option of the Company, in either cash or common stock.

The Company agreed to file a Registration Statement on Form S-3 covering the resale of all of the shares of the Company's common stock issuable upon conversion of the Notes and exercise of the Warrants using its best efforts to have the Registration Statement declared effective within 120 days of the closing. Depending on the length of time after this 120 day period for the Registration Statement to be declared effective, a penalty ranging from .8% to 1.2% of the principal amount of the Notes and Warrants would accrue to the Note holders. The Registration Statement on Form S-3 was declared effective by the SEC on February 13, 2007; consequently, the Company incurred approximately $0.4 million in Registration Statement penalties.

The Company analyzed all of the above provisions in the Notes and related agreements for embedded derivatives under SFAS No. 133, *Accounting for Derivative Instruments and Hedging Activities,* and related EITF interpretations and SEC rules. The Company has determined that four such provisions in the convertible debt agreement are considered derivatives under SFAS No. 133:

- The embedded written option relating to the common stock that may be potentially issuable upon conversion ("conversion feature derivative")
- The option for Note holders to put back debt to the Company in connection with certain corporate change of control transactions
- The provision relating to an additional payment in connection with the automatic conversion of the Notes prior to October 15, 2008
- The provision to increase the conversion rate in the event of a change in control transaction

The Company prepared valuations of each of the above derivatives and recorded a $5.5 million liability on the date of issuance of the Notes, with an offsetting discount on the Notes. The discount is being amortized to interest expense over the 20 year life of the Notes, using the effective interest method.

At its annual shareholder meeting held on September 25, 2006, the Company received approval from its shareholders to increase its authorized shares to 100,000,000, eliminating the previous deficiency in authorized shares. Since the Company then had sufficient authorized shares to settle the Notes if converted, the conversion feature derivative no longer was required to be accounted for as an embedded derivative under SFAS No. 133. The remaining conversion feature derivative balance of $1.4 million was reclassified against the discount on the Notes for the year ended December 31, 2006.

The derivative liability is adjusted to fair value on a quarterly basis. The derivative liability was adjusted to fair value at each quarter end during 2006 and 2007, resulting in $1.5 million and $0.1 million change in valuation credits to other income for these years, respectively. The remaining liability was $0.14 million at

December 31, 2007. The derivative liability is presented in the balance sheet within the same line as the Convertible Senior Notes payable.

Notes Payable

In July 2004, the Company entered into a Loan and Security Agreement ("Loan Agreement") with Silicon Valley Bank ("Bank"), establishing a secured revolving credit facility for $8.5 million consisting of a $2.5 million three-year term loan as well as a two-year $6.0 million line of credit. In March 2006, the Bank agreed to provide for additional advances of up to $1.5 million, which the Company could use to finance or refinance eligible equipment purchased on or after June 1, 2005 and on or before May 31, 2006. The Company fully drew down both the $2.5 million term loan and the $1.5 million advance amount, which were being repaid over 36 and 60 month periods, respectively. The Company had not drawn any advances and had no outstanding balance on the $6.0 million line of credit. All Company assets are pledged as collateral on the credit facility.

The Company was subject to certain financial covenants under the Loan Agreement, as amended, to maintain a liquidity ratio of not less than 2.0 to 1.0 and a net tangible net worth of at least $40 million. At December 31, 2006, the Company was not in compliance with the liquidity ratio covenant. In February 2007, the Company entered into an Amendment to the Loan Agreement ("February 2007 Amendment") whereby, effective December 31, 2006, the liquidity ratio was decreased to be equal to or greater than 1.6 to 1.0 and the tangible net worth requirement was eliminated, bringing the Company into compliance with the covenants as amended. The February 2007 Amendment also terminated the line of credit.

In June 2007, the Company entered into an Amendment to the Loan Agreement ("June 2007 Amendment") whereby the Bank consented to (i) the Company's purchase of certain surgical cryoablation assets from CryoCath ("CryoCath Assets") and (ii) certain agreements related to the acquisition of the CryoCath Assets. The June 2007 Amendment also provided for a new $8.6 million term loan ("Term Loan") to the Company, which was used to repay the outstanding term loan and advances to the Company from the Bank under the Loan Agreement and to purchase the CryoCath Assets.

Under the Term Loan, as amended, the Company is required to make monthly payments of interest only beginning on July 1, 2007, and continuing on the first day of each successive month until March 1, 2008, and 39 monthly payments of principal plus interest beginning on April 1, 2008 and continuing on the first day of each successive month until June 1, 2011. The Company also has the right to prepay all, but not less than all, of the outstanding Term Loan at any time so long as no event of default has occurred. Interest on the Term Loan accrues at a fixed rate per annum of 9.5%, equal to 1.25% above the Prime Rate in effect as of the funding date of the Term Loan.

The June 2007 Amendment also made certain changes to the liquidity ratio test set forth in the Loan Agreement, as amended. The liquidity ratio was changed to require that the Company maintain, at all times, on a consolidated basis, a ratio of (a) the sum of 1) unrestricted cash (and equivalents) of the Company on deposit with the Bank plus 2) 50% of the Company's accounts receivable arising form the sale or lease of goods, or provision of services, in the ordinary course of business, divided by (b) the indebtedness of the Company to the Bank for borrowed money, of equal to or greater than 1.4 to 1.0. As of December 31, 2007, the Company was in compliance with the financial covenants as set forth in the Loan Agreement, as amended.

Future maturities of bank notes payable are as follows (in thousands):

2008	$ 2,457
2009	2,457
2010	2,457
2011	1,229
	$ 8,600

8. Employee Stock Purchase Plan

The Company maintains an Employee Stock Purchase Plan. Under the terms of the plan, employees are eligible to purchase common stock of the Company on a quarterly basis. Employees can purchase common stock at 85% of the lesser of the market price of the common stock on the first day of the quarter or the last day of the quarter. The Employee Stock Purchase Plan is deemed to be a compensatory plan under Statement No. 123(R) and the related expense is included in stock compensation expense.

The following table summarizes the shares issued and issuance prices under the Plan:

Fiscal Year	Number of Shares	Price Range
2007	129,449	$1.50 – $1.84
2006	103,947	$1.95 – $2.38
2005	120,465	$2.54 – $3.14

9. Stock-Based Compensation and Equity Plans

Stock-Based Compensation

The Company accounts for its stock-based employee compensation plans under the recognition and measurement principles of SFAS No. 123 (Revised 2004), *Share-Based Payment* ("Statement 123(R)"), which requires all share-based payments to be recognized in the income statement based on their fair values. Pro forma disclosure is no longer an alternative.

Statement 123(R) was adopted by the Company on January 1, 2006 using the modified prospective transition method. Accordingly, the Company has not restated its consolidated financial statements for prior periods. Under this transition method, stock-based compensation expense for 2006 includes expense related to the Company's stock-based compensation awards granted in 2006 and those awards granted prior to, but not yet vested as of, January 1, 2006, based on the grant-date fair value estimated in accordance with the provision of SFAS No. 123. Stock-based compensation expense for all grants and awards made on or after January 1, 2006 are based on the grant-date fair value estimated in accordance with the provisions of Statement 123(R).

Fair Value. The Company uses the Black-Scholes-Merton ("Black-Scholes") option pricing model as its method for determining fair value of stock option grants, which was also used by the Company for its pro forma information disclosures of stock-based compensation expense as required under SFAS No. 123, prior to the adoption of Statement 123(R). The weighted average per share fair value of these option grants is shown below for 2006 and 2005 (there were no options granted in 2007) and was estimated at the date of grant using the Black-Scholes model with the following weighted average assumptions:

Assumptions used:	2006	2005
Expected volatility	0.83	0.87
Risk-free interest rate	4.8%	3.8%
Expected life	5 years	7 years
Dividend yield	0%	0%
Weighted average per share fair value of options granted	$ 2.03	$ 2.73

The expected volatility is a measure of the amount by which the Company's stock price is expected to fluctuate during the expected term of options granted. The Company determines the expected volatility solely based upon the historical volatility of the Company's common stock over a period commensurate with the option's expected life. The Company does not believe the future volatility of its common stock over an option's expected life is likely to differ significantly from the past. The risk-free interest rate is the implied yield available on U.S. Treasury issues with a remaining term equal to the option's expected life on the grant date. The expected life of options granted represents the period of time for which options are expected to be outstanding and is derived from the Company's historical stock option exercise experience

and option expiration data. For purposes of estimating the expected life, the Company has aggregated all individual option awards into one group as the Company does not expect substantial differences in exercise behavior among its employees. The dividend yield is zero since the Company has never declared or paid any cash dividends on its common stock and does not expect to do so in the foreseeable future.

The fair value of restricted stock unit awards ("RSUs") is determined based on the closing market price on the award date.

Stock Compensation Expense. The Company uses the single option (i.e. straight-line) method of attributing the value of stock-based compensation expense for all stock option grants. Upon adoption of Statement 123(R), the Company changed its method of attributing the value of stock-based compensation expense on RSUs from the multiple-option (i.e. accelerated) approach to the single option method. Compensation expense for RSUs awarded prior to January 1, 2006 will continue to be subject to the accelerated multiple option method specified in FASB Interpretation No. 28 ("FIN 28"), *Accounting for Stock Appreciation Rights and Other Variable Stock Option or Award Plans*, while compensation expense for RSUs awarded on or after January 1, 2006 will be recognized using the single option method. Stock compensation expense for all stock-based grants and awards is recognized over the service or vesting period of each grant or award.

The following table summarizes stock compensation expense recognized in the statements of operations for the years ended December 31, 2007, 2006 and 2005:

(in thousands, except per share data)	**2007**	**2006**	**2005**
Stock compensation expense included in:			
Sales and marketing expenses	**$ 805**	$ 649	$ -
General and administrative expenses	**649**	454	585
Total stock compensation expense	**$1,454**	$1,103	$ 585
Stock compensation expense per share	**$ 0.03**	$ 0.03	$0.02

Because the Company maintained a full valuation allowance on its U.S. deferred tax assets, the Company did not recognize any net tax benefit related to its stock-based compensation expense for the years ended December 31, 2007, 2006 and 2005.

Forfeitures. Statement 123(R) requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates in order to derive the Company's best estimate of awards ultimately expected to vest. Forfeitures represent only the unvested portion of a surrendered option and are typically estimated based on historical experience. Based on an analysis of the Company's historical data, the Company applied the following forfeiture rates to stock options and RSUs outstanding in determining its stock compensation expense, which it believes are reasonable forfeiture estimates for these periods:

	2007	**2006**
First Quarter	**9.26%**	11.85%
Second Quarter	**8.97%**	10.14%
Third Quarter	**8.50%**	9.57%
Fourth Quarter	**9.06%**	9.90%

In the Company's pro forma information below, required under SFAS No. 123 for the periods prior to 2006, the Company accounted for forfeitures as they occurred.

Pro Forma Information. Prior to the adoption of Statement 123(R), the Company accounted for its stock-based employee compensation plans under the recognition and measurement principles of APB Opinion No. 25 and related interpretations. The exercise price of the Company's employee stock options generally equaled the market price of the underlying stock on the date of grant for all options granted, and thus, under APB Opinion No. 25, no compensation expense was recognized. Pro forma information regarding net loss

and net loss per share is required by SFAS No. 123 and has been determined as if the Company had accounted for its employee stock options under the fair value method of SFAS No. 123.

The following table illustrates the pro forma effect on net loss and net loss per share if the Company had applied the fair value recognition provisions of SFAS No. 123 to stock-based employee compensation. Since stock-based compensation expense for the years ended December 31, 2007 and 2006 was calculated and recorded under the provisions of Statement 123(R), no pro forma disclosure for these years is presented.

(in thousands, except per share data)	2005
Net loss, as reported	($14,394)
Less: Total stock-based employee compensation expense determined under fair value based method for all awards	(5,301)
Pro forma net loss	($19,695)
Net loss per share:	
As reported	
Basic and diluted	($0.46)
Pro forma	
Basic and diluted	($0.64)

Equity Plans

The Company has a Stock Incentive Plan (the "Plan") under which stock options to purchase common stock of the Company may be granted or RSUs may be awarded to employees and non-employees of the Company. Stock options may be granted under the Plan as incentive stock options ("ISO") or as non-qualified stock options ("non-ISO"). The Company also has stock options outstanding from a previous equity compensation plan as well as free-standing options not under any plan. In addition, the Company has an Employee Stock Purchase Plan ("ESPP") under which employees are eligible to purchase common stock of the Company on a quarterly basis at 85% of the lesser of the market price of the common stock on the first day of the quarter or the last day of the quarter. All stock issued under options exercised, RSUs awarded or ESPP shares purchased are new shares of the Company's common stock. Option grants generally carry contractual terms of up to ten years. RSU awards generally carry contractual terms of up to five years.

The Company had a total of 6,618,770 shares of common stock reserved for stock option grants and RSU awards at December 31, 2007, of which 1,915,407 shares were available for future grants or awards under the Plan.

Stock Options. The following table summarizes the changes in stock options outstanding under the Company's stock-based compensation plans:

	Stock Options Outstanding Under the Plans				Weighted Average Option Exercise Price Per Share
	ISO	Non-ISO	Non-Plan Options	Total	
Outstanding at December 31, 2004	1,239,950	460,500	2,985,556	4,686,006	3.27
Options granted	750	15,000	293,000	308,750	3.49
Options exercised	(52,125)	(2,500)	(49,404)	(104,029)	1.82
Options canceled	(181,875)	(123,000)	(331,250)	(636,125)	4.78
Outstanding at December 31, 2005	1,006,700	350,000	2,897,902	4,254,602	3.09
Options granted	-	5,000	-	5,000	2.95
Options exercised	(7,625)	-	(40,202)	(47,827)	0.92
Options canceled	(81,450)	(56,000)	(325,000)	(462,450)	4.57
Outstanding at December 31, 2006	917,625	299,000	2,532,700	3,749,325	$2.94
Options granted	-	-	-	-	-
Options exercised	**(21,500)**	-	**(502,000)**	**(523,500)**	**0.92**
Options canceled	**(226,250)**	-	**(333,750)**	**(560,000)**	**4.44**
Outstanding at December 31, 2007	**669,875**	**299,000**	**1,696,950**	**2,665,825**	**$3.02**

The following table summarizes the ranges of exercise prices for outstanding and exercisable stock options as of December 31, 2007:

	Options Outstanding at December 31, 2007			**Options Exercisable at December 31, 2007**	
Range of Exercise Prices	Number Outstanding	Weighted Average Remaining Contractual Life	Weighted Average Exercise Price	Number Exercisable	Weighted Average Exercise Price
$0.37 – $0.46	505,000	4.88 years	$0.40	505,000	$0.40
0.51 – 2.51	524,250	5.20 years	1.88	524,250	1.88
2.70 – 3.60	524,200	5.80 years	3.29	520,450	3.29
3.64 – 3.80	605,750	5.81 years	3.74	605,750	3.74
3.99 – 8.50	476,625	3.71 years	5.41	476,625	5.41
9.88	30,000	2.34 years	9.88	30,000	9.88
$0.37 – $9.88	2,665,825	5.10 years	$3.02	2,662,075	$3.02

As of December 31, 2007, the aggregate intrinsic value of options outstanding and exercisable was approximately $1.2 million. The aggregate intrinsic value of options exercised for the years ended December 31, 2007 and 2006 was approximately $0.7 million and $0.1 million, respectively. The aggregate intrinsic value represents the total pre-tax intrinsic value (the difference between the closing price of the Company's common stock on December 31, 2007 and 2006 ($2.21 and $2.07 per share, respectively) and the exercise price of each-in-the-money option that would have been received by the option holders had all option holders exercised their options on those dates). As of December 31, 2007, the Company had $0.01 million of total unrecognized compensation expense, net of estimated forfeitures, related to stock options that will be recognized over a weighted average period of less than one year.

In December 2005, the Company authorized the acceleration of vesting of all otherwise unvested stock options held by its employees with an exercise price of $3.00 or greater granted under its Stock Incentive Plan or as a free- standing option not under any plan. Options to purchase 1,294,232 shares of common stock (affecting 86 employees) were subject to this acceleration. The decision to accelerate vesting of these options was made primarily to minimize future compensation expense that the Company would otherwise recognize in its consolidated statement of operations with respect to these options pursuant to Statement 123(R). The aggregate future expense eliminated as a result of the acceleration of the vesting of these options was approximately $3.3 million.

Restricted Stock Units. The following table summarizes RSU awards activity under the Company's stock-based compensation plans:

	Number of Shares	Weighted Average Award Date Fair Value	Weighted Average Remaining Contractual Term
Unvested at December 31, 2004	–	–	–
Awards granted	351,000	$3.37	
Awards forfeited	(3,000)	3.66	
Unvested at December 31, 2005	348,000	3.25	1.53 years
Awards granted	967,272	2.73	
Awards vested	(87,000)	3.38	
Awards forfeited	(58,750)	3.11	
Unvested at December 31, 2006	1,169,522	$2.83	2.03 years
Awards granted	**1,537,184**	**1.74**	
Awards vested	**(419,055)**	**2.75**	
Awards forfeited	**(250,113)**	**2.51**	
Unvested at December 31, 2007	**2,037,538**	**$2.06**	**2.09 years**

As of December 31, 2007, the aggregate intrinsic value of RSU awards outstanding was $4.5 million. The aggregate intrinsic value represents the total pre-tax value of common stock RSU holders would have received (based on the closing price of the Company's common stock on December 31, 2007 of $2.21 per share) had all RSUs vested and common stock been issued to the RSU holders on December 31, 2007. As of December 31, 2007, the Company had $2.9 million of total unrecognized compensation expense, net of estimated forfeitures, related to RSU awards that will be recognized over a weighted average period of approximately four years.

10. Leases

The Company has operating leases for its facilities. These leases expire at various dates through November 2011. Future minimum lease payments under these agreements are as follows (in thousands):

Year ending December 31:	
2008	$ 836
2009	812
2010	377
2011	48
	$2,073

Rent expense was $1.0 million, $0.7 million and $0.6 million for 2007, 2006 and 2005, respectively.

11. Income Taxes

At December 31, 2007, the Company had federal net operating loss carryforwards of approximately $152 million ($54 million related to 3F) and credits for increasing research and development costs of approximately $1 million ($0.8 million related to 3F). The Company also had state net operating loss carryforwards of approximately $87.8 million ($46.9 million related to 3F) and research and development credits of approximately $0.6 million ($0.5 million related to 3F). The net operating loss carryforwards are available to offset future taxable income or reduce taxes payable through 2027. These loss carryforwards will begin expiring in 2008. The credits continue to expire in 2008 through 2027.

Included as part of the Company's net operating loss carryforwards are approximately $3.8 million in tax deductions that resulted from the exercise of stock options. Should these loss carryforwards be realized, the corresponding change in valuation allowance will be recorded as additional paid-in capital.

The Company's ability to utilize a portion of its net operating loss carryforwards and research and development credits to offset future taxable income are subject to certain limitations under Section 382 and

383 of the Internal Revenue Code due to changes in the equity ownership of the Company. In addition, 3F's net operating loss carryforwards may also be limited by separate return limitation year rules.

In addition to the U.S. tax attributes discussed above, the Company had net operating loss carryforwards outside the U.S. totaling $1.3 million which resulted in a deferred tax asset of $0.4 million. These international net operating loss carryforwards do not expire.

Components of deferred tax assets and liabilities are as follows (in thousands):

	December 31	
	2007	**2006**
Current deferred tax assets	**$ 576**	$ 557
Long-term deferred tax assets (liabilities):		
Net operating loss carryforwards	**56,383**	50,153
Foreign net operating loss carryforwards	**419**	711
Research and development credits	**1,507**	897
Alternative minimum tax credits	**54**	31
Depreciation	**1,020**	854
Compensation accruals and reserves	**467**	495
Deferred financing costs	**194**	108
Convertible senior notes derivatives	**0**	(1,305)
Technology license amortization	**(1,534)**	(1,311)
Other intangible assets and goodwill	**(1,016)**	(2,606)
Other	**835**	409
Net long-term deferred tax assets	**58,329**	48,436
Net deferred tax assets before valuation allowance	**58,905**	48,993
Less valuation allowance	**(59,000)**	(48,993)
Net deferred tax asset (liability)	**$ (95)**	$ -

The valuation allowance above includes 3F net deferred tax assets (primarily net operating loss carryforwards) of $20.0 million. If realized, 3F tax assets will be recorded first as reductions to goodwill and intangible assets ($18.8 million at December 31, 2007), and then as income tax benefits ($1.2 million at December 31, 2007). The Company has determined that a full valuation allowance is appropriate given the uncertainty of the Company's ability to utilize the deferred tax assets.

Reconciliation of the statutory federal income tax rate to the Company's effective tax rate is as follows:

	2007	**2006**	**2005**
Tax at statutory rate	**(34.0)%**	(34.0)%	(34.0)%
State income taxes	**(4.0)**	(4.0)	(4.0)
Permanent Differences	**(3.8)**	-	-
Other	**(1.4)**	-	-
Acquired in-process research and development	**-**	17.7	-
Impact of changes in valuation allowance	**43.7**	20.3	38.0
	0.5%	-%	-%

The Company adopted the provisions of FIN 48, *Accounting for Uncertainty in Income Taxes*, on January 1, 2007. Previously, the Company had accounted for tax contingencies in accordance with SFAS No. 5, *Accounting for Contingencies*. As required by FIN 48, which clarifies SFAS No. 109, *Accounting for Income Taxes*, the Company recognizes the financial statement benefit of a tax position only after determining that the relevant tax authority would more likely than not sustain the position. For tax positions meeting the more likely than not threshold, the amount recognized in the financial statements is the largest benefit that has a greater than 50 percent likelihood of being realized upon ultimate settlement with the

relevant tax authority. At the adoption date, the Company applied FIN 48 to all tax positions for which the statute of limitations remained open.

As a result of the implementation of FIN 48, the Company identified approximately $540,000 of unrecognized tax benefits. The total gross amount of unrecognized tax benefits as of December 31, 2007 was approximately $530,000. If recognized, none of the unrecognized tax benefits would affect the effective tax rate. A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

Balance at January 1, 2007	$540,000
Additions for tax positions of prior periods	13,000
Additions for tax positions related to the current period	-
Reductions for tax positions of prior periods	-
Reductions for tax positions related to the current period	(23,000)
Settlements with taxing authorities	-
Lapse of applicable statute	-
Balance at December 31, 2007	**$530,000**

It is the Company's practice to recognize penalties and/or interest related to income tax matters in interest and penalties expense. As of December 31, 2007, the Company had no accrued interest and penalties.

The Company is subject to income taxes in the U.S. federal jurisdiction, foreign jurisdictions and various states jurisdictions. Tax regulations within each jurisdiction are subject to the interpretation of the related tax laws and regulations and require significant judgment to apply. With few exceptions, the Company is no longer subject to U.S. federal, foreign, state or local income tax examinations by tax authorities for the years before 2004. The Company is not currently under examination by any taxing jurisdiction.

The Company does not anticipate any significant increases or decreases in unrecognized tax benefits within the next twelve months.

12. Commitments

In 2002 the Company amended long-term supply and technology transfer agreements with CarboMedics, a wholly owned subsidiary of Sorin, a European company based in Italy. The amendment to the supply agreement suspended component set purchases until January 2007. This postponed component purchases totaling approximately $21.75 million for the years ended December 31, 2002 to 2006. The 2002 through 2006 purchase obligations were to resume, beginning in 2007. In January 2007, CarboMedics served a complaint on the Company, alleging breach of contract with respect to the long-term supply agreement, discussed more fully in Note 18. The Company believes that the complaint filed by CarboMedics is without merit, that CarboMedics has repudiated and breached the supply agreement, and that the Company has affirmative claims against CarboMedics.

13. Distributor Termination

In December 2006, the Company and an international distributor in Europe executed agreements providing for the termination of the distributor, the conversion of the distributor to a commissioned sales representative effective January 1, 2007 and the buy-back by the Company of the distributor's remaining inventory stock. The value of the inventory bought back totaled approximately $0.7 million. In addition, termination payments to the distributor totaling approximately $0.7 million were accrued by the Company at December 31, 2006. The termination payments are payable in two equal installments, one of which was paid in the fourth quarter of 2007 and the other of which is due in first quarter of 2008. The 2008 installment carries interest at 6%.

14. Benefit Plan

The Company has a defined contribution salary deferral plan covering substantially all employees under Section 401(k) of the Internal Revenue Code. Under the plan, the Company contributes an amount equal to 25% of the first 12% of each employee's contribution. The Company recognized expense for contributions to the plan of $0.2 million for each of the three years ended December 31, 2007, 2006 and 2005.

15. Significant Customers and Concentration of Credit Risk

Since its inception, the Company has operated in a single industry segment: developing, manufacturing, and marketing medical devices. As a result, the information disclosed herein materially represents all of the financial information related to the Company's principal operating segment. The Company derived the following percentages of its net sales from the following geographic regions:

	2007	2006	2005
United States and Canada	**38%**	39%	38%
Europe	**34%**	28%	28%
Asia Pacific	**22%**	25%	26%
Other Markets	**6%**	8%	8%

The company uses independent distributors to sell its products in many European and all other international markets. Sales to one distributor represented 8%, 11% and 13% of the Company's net sales for the years ended December 31, 2007, 2006 and 2005, respectively.

The Company had balances owing from two customers that aggregated 12% of its accounts receivable balances at December 31, 2007. The Company had balances owing from three customers that aggregated 19% of its accounts receivable balances at December 31, 2006 and balances owing from five customers that represented 37% of its accounts receivable balances at December 31, 2005.

16. Quarterly Financial Data (Unaudited)

Quarterly data for 2007 and 2006 was as follows (in thousands, except loss per share):

	Quarter			
	First	**Second**	**Third**	**Fourth**
Year ended December 31, 2007				
Net sales	**$ 10,796**	**$12,417**	**$12,157**	**$14,217**
Gross profit	**6,243**	**6,872**	**6,844**	**8,280**
Net loss	**(4,820)**	**(8,717)**	**(3,310)**	**(6,161)**
Net basic and diluted loss per share	**$ (0.11)**	**$ (0.18)**	**$ (0.06)**	**$ (0.10)**
Year ended December 31, 2006				
Net sales	$ 9,730	$10,857	$ 9,122	$10,740
Gross profit	4,732	5,447	5,228	5,474
Net loss	(1,575)	(2,764)	(17,255)	(6,080)
Net basic and diluted loss per share	$ (0.05)	$ (0.09)	$ (0.55)	$ (0.15)

In connection with the acquisition of CryoCath assets disclosed in Note 2 above, the Company acquired $3.5 million of IPR&D, recorded as a non-recurring charge to operations in the second quarter of 2007. In connection with the acquisition of 3F Therapeutics, also disclosed in Note 2 above, the Company acquired $14.4 million of IPR&D, recorded as a non-recurring charge to operations in the third quarter of 2006.

The Company recorded a $0.7 million charge related to the termination of a European distributor in the fourth quarter of 2006, as disclosed in Note 13 above.

The conversion feature liability related to of the Company's Senior Convertible Notes, disclosed in Note 7 above, was adjusted to fair value at each quarter end throughout 2006 and 2005, resulting in a $1.2 million change in valuation credit to other income in the first quarter of 2006.

17. Recently Issued Accounting Pronouncements

In September 2006, the FASB issued SFAS No. 157, *Fair Value Measurements*. SFAS No. 157 establishes a common definition for fair value to be applied to U.S. generally accepted accounting principles and expands disclosure about such fair value measurements. SFAS No. 157 is effective for fiscal years beginning after November 15, 2007. The Company is currently assessing the impact of SFAS No. 157 on its consolidated financial position and results of operations.

In February 2007, the FASB issued SFAS No. 159, *The Fair Value Option for Financial Assets and Financial Liabilities*. SFAS No. 159 amends SFAS No. 115, *Accounting for Certain Investments in Debt and Equity Securities* and permits entities to choose to measure many financial instruments and certain other items at fair value. SFAS No. 159 is effective for fiscal years beginning after November 15, 2007. The Company is currently assessing the impact of SFAS No. 159 on its consolidated financial position and results of operations.

In December 2007, the FASB issued SFAS No. 141(R), *Business Combinations* ("SFAS No. 141(R)"), which establishes principles and requirements for how an acquirer recognizes and measures in its financial statements the identifiable assets acquired, the liabilities assumed, and any non-controlling interest in the acquired company and the goodwill acquired. Among the changes in SFAS No. 141(R) are: transaction related costs will be expensed; restructuring costs that the acquirer expects but is not obligated (as of the acquisition date) to incur will not be included in the measurement of the acquisition cost; and research and development assets will be capitalized. SFAS No. 141(R) also establishes disclosure requirements to enable the evaluation of the nature and financial effects of the business combination. SFAS No. 141(R) replaces SFAS No. 141 and is effective as of the beginning of an entity's fiscal year that begins after December 15, 2008, and will be adopted by the Company in the first quarter of 2009.

18. Litigation

Abbey Litigation

On January 23, 2006, following execution of the Merger Agreement between the Company and 3F, 3F was informed of a summons and complaint dated January 19, 2006, which was filed in the U.S. District Court in the Southern District of New York by Arthur N. Abbey ("Abbey") against 3F Partners Limited Partnership II (a major stockholder of 3F, "3F Partners II"), Theodore C. Skokos (the then chairman of the board and a stockholder of 3F), 3F Management II, LLC (the general partner of 3F Partners II), and 3F (collectively, the "Defendants") (the "Abbey I Litigation"). The summons and complaint alleges that the Defendants committed fraud under federal securities laws, common law fraud and negligent misrepresentation in connection with the purchase by Abbey of certain securities of 3F Partners II. In particular, Abbey claims that the Defendants induced Abbey to invest $4 million in 3F Partners II, which, in turn, invested $6 million in certain preferred stock of 3F, by allegedly causing Abbey to believe, among other things, that such investment would be short-term. Pursuant to the complaint, Abbey is seeking rescission of his purchase of his limited partnership interest in 3F Partners II and return of the amount paid therefore (together with pre- and post-judgment interest), compensatory damages for the alleged lost principal of his investment (together with interest thereon and additional general, consequential and incidental damages), general damages for all alleged injuries resulting from the alleged fraud in an amount to be determined at trial and such other legal and equitable relief as the court may deem just and proper. Abbey did not purchase any securities directly from 3F and is not a stockholder of 3F. On March 23, 2006, 3F filed a motion to dismiss the complaint. Under the Private Securities Litigation Reform Act, no discovery will be permitted until the judge rules upon the motion to dismiss. On May 15, 2006, 3F filed and served a reply memorandum of law in further support of its motion to dismiss Abbey's complaint with prejudice. On August 6, 2007, the Court granted 3F's motion to dismiss the complaint based on plaintiff's failure to state a claim upon which relief may be granted and the case was closed. On August 30, 2007, Abbey filed a Notice of Appeal with the United States Court of Appeals for the Second Circuit seeking to reverse the District Court's August 6, 2007 Order

dismissing the case. The appeal was fully submitted on January 3, 2008. None of the parties have requested oral argument.

On or about June 14, 2006, Abbey commenced a second civil action in the Court of Chancery in the State of Delaware by serving 3F with a complaint naming both 3F and Mr. Skokos as defendants (the "Abbey II Litigation"). The complaint alleges, among other things, fraud and breach of fiduciary duties in connection with the purchase by Abbey of his partnership interest in 3F Partners II. The Delaware action seeks: (1) a declaration that (a) for purposes of the merger, Abbey was a record stockholder of 3F and was thus entitled to withhold his consent to the merger and seek appraisal rights after the merger was consummated and (b) the irrevocable stockholder consent submitted by 3F Partners II to approve the merger be voided as unenforceable; and (2) damages based upon allegations that 3F aided and abetted Mr. Skokos in breaching Mr. Skokos's fiduciary duties of loyalty and faith to Abbey. On July 17, 2006, 3F filed a motion to dismiss the complaint in the Abbey II Litigation, or, alternatively, to stay the action pending adjudication of the Abbey I Litigation. On October 10, 2006, the Delaware Chancery Court entered an order staying the Delaware action pending the outcome of the Abbey I litigation. On or about August 17, 2007, the parties informed the Delaware Chancery Court that they would consent to the continued stay of the Delaware action pending the outcome of Abbey's appeal of the Abbey I Litigation.

3F has been notified by its director and officer insurance carrier that such carrier will defend and cover all defense costs as to 3F and Mr. Skokos in the Abbey I Litigation and Abbey II Litigation, subject to policy terms and full reservation of rights. In addition, under the merger agreement, 3F and the 3F stockholder representative have agreed that the Abbey I Litigation and Abbey II Litigation are matters for which express indemnification is provided. As a result, the escrow shares and milestone shares, if any, may be used by ATS to satisfy, in part, ATS's set-off rights and indemnification claims for damages and losses incurred by 3F or ATS, and their directors, officers and affiliates, that are not otherwise covered by applicable insurance arising from the Abbey I Litigation and Abbey II Litigation. See Note 2 of "Notes to Consolidated Financial Statements" in this report for a description of the escrow and milestone shares. The Company believes the Abbey I Litigation and Abbey II Litigation will not result in a material impact on the Company's financial position or operating results.

CarboMedics Litigation

On November 22, 2006, CarboMedics filed a complaint against ATS in the U.S. District Court in the District of Minnesota. The complaint alleges that the Company has breached certain contractual obligations, including an alleged obligation to purchase $22 million of mechanical heart valve carbon components under a long-term supply agreement with CarboMedics, which obligation CarboMedics contends had been scheduled to re-commence in 2007.

CarboMedics initially sought specific performance and claimed damages of approximately $20 million. The Company believes the complaint filed by CarboMedics is without merit, that CarboMedics has repudiated and breached the long-term supply agreement, and that the Company may have affirmative claims against CarboMedics. On February 16, 2007, the Company filed its answer and counterclaim to the complaint. On May 16, 2007, CarboMedics filed an amended complaint withdrawing its request for specific performance. CarboMedics has also revised its damages estimate to $13.6 million before accounting for net present value adjustments, interest, attorney's fees, and costs. The case is now in the final stages of discovery and has been scheduled for trial in September 2008. If the Company is ultimately found to be in breach of the terms of the supply agreement with CarboMedics, it could be required to pay damages that would materially and adversely affect the Company's financial condition.

INVESTOR INFORMATION

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Dorsey & Whitney LLP

Patent Counsel
Haugen Law Firm LLP
Oppenheimer Wolff and
Donnelly LLP

Transfer Agent and Registrar
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Form 10-K
A copy of the Company's annual report to the Securities and Exchange Commission will be provided without charge to any shareholder upon written request to the Corporate Secretary at the corporate headquarters.

BOARD OF DIRECTORS

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Chairman of the Board
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President
Acorn Cardiovascular, Inc.

Robert E. Munzenrider
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St. Jude Medical, Inc.

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Co-founder and
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Former Chairman of the
Board, 3f Therapeutics

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Jeremy J. Curtis
Vice President of
Worldwide Marketing

David R. Elizondo
Vice President of
Research, Development
and General Manager,
Tissue Operations

Michael R. Kramer
Chief Financial Officer

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END

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