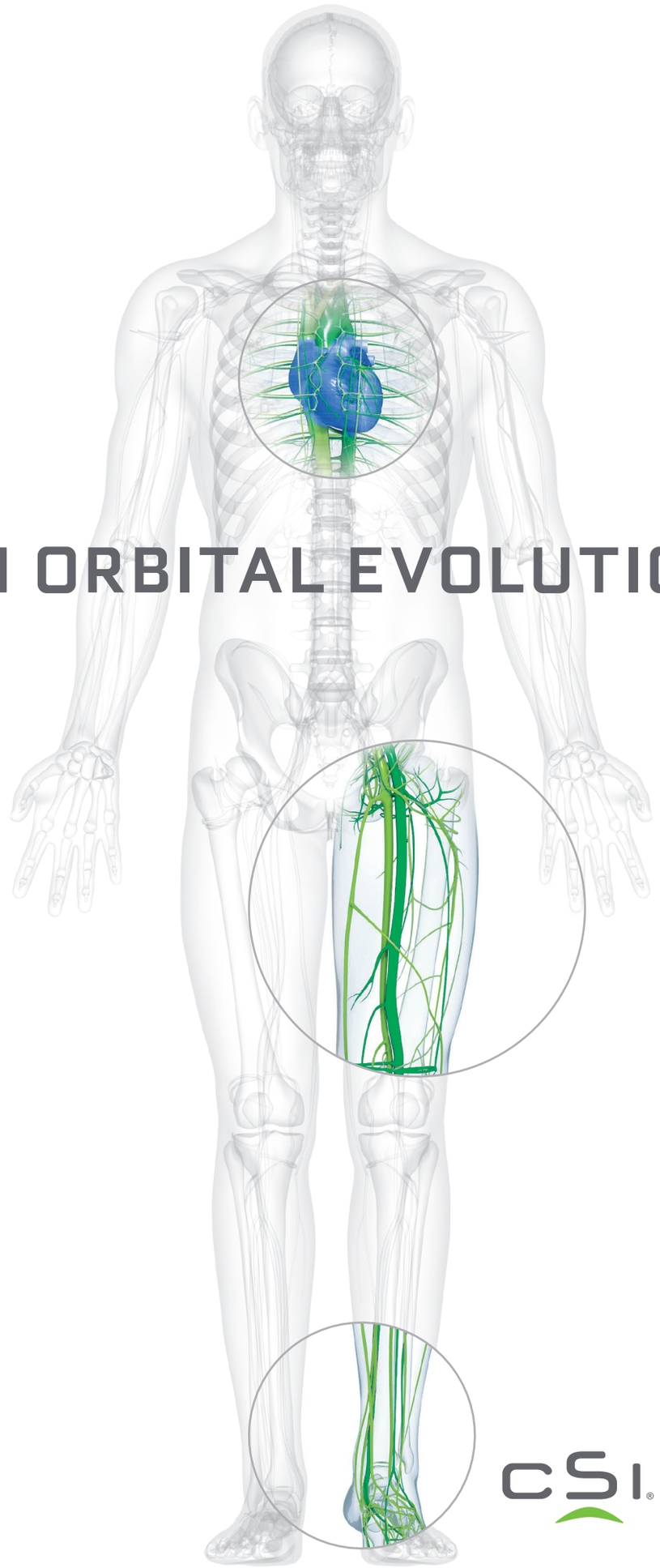
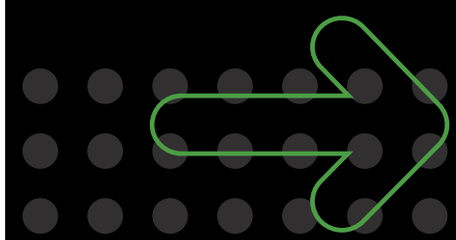


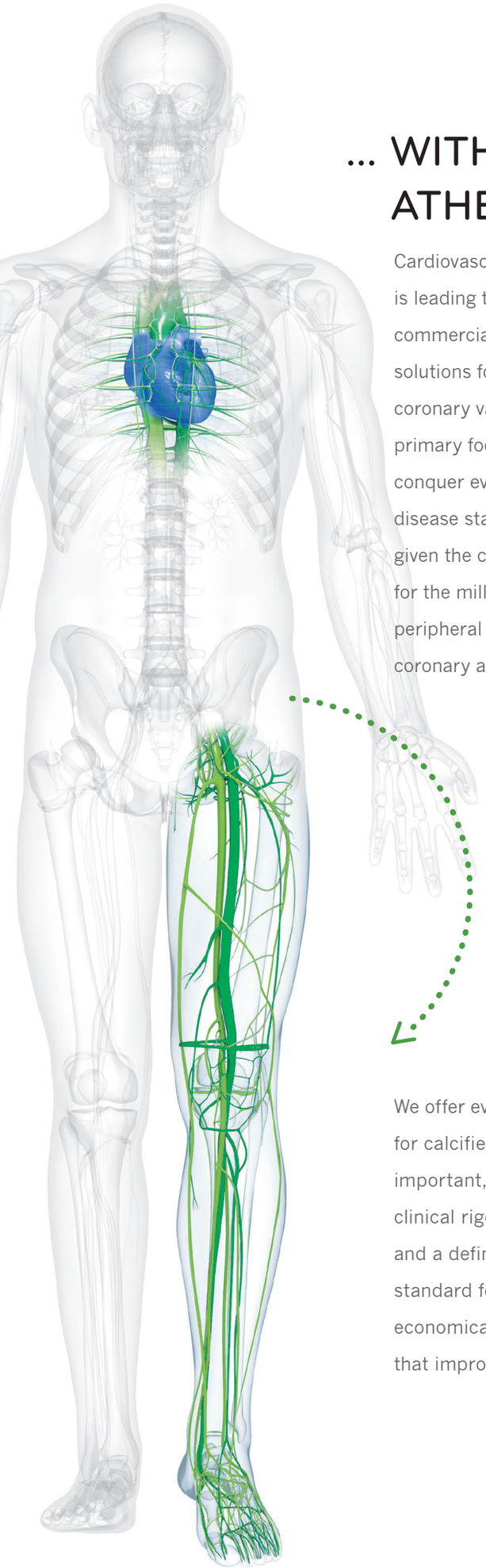
AN ORBITAL EVOLUTION

2015 Annual Report

CARDIOVASCULAR SYSTEMS, INC.

CSI IS LEADING THE WAY...





... WITH ORBITAL ATHERECTOMY

Cardiovascular Systems, Inc. (CSI) is leading the way in developing and commercializing innovative solutions for treating peripheral and coronary vascular disease. Our primary focus is helping physicians conquer even the most difficult disease states, including calcium, given the complications it presents for the millions who suffer from peripheral artery disease (PAD) and coronary artery disease (CAD).

We offer evidence-based treatment for calcified lesions. Even more important, we're committed to clinical rigor, constant innovation and a defining drive to set the standard for safe, effective and economical medical devices that improve patient outcomes.

AN ORBITAL EVOLUTION

ABOUT CSI

30+%
revenue growth for fiscal 2014 and 2015

Based in St. Paul, Minn., CSI develops and manufactures Orbital Atherectomy Systems (OAS) that, in a few minutes of time, treat calcified and fibrotic plaque in arterial vessels throughout the leg and heart. Our products address many of the limitations associated with existing surgical, catheter and pharmacological treatment alternatives. CSI's technology restores blood flow from hearts-to-heels and is always striving to help improve patient lives. The U.S. FDA granted 510(k) clearance for the Diamondback® Peripheral Orbital Atherectomy System in August 2007. In October 2013, the company received FDA approval for the Diamondback Coronary Orbital Atherectomy System. Through fiscal 2015, nearly 210,000 of CSI's orbital atherectomy devices have been sold to leading institutions across the United States.

And we're just getting started.

A FIERCE COMMITMENT TO IMPROVING PATIENT OUTCOMES

As many as 18 million Americans, most over age 65, suffer from PAD, which is caused by the accumulation of plaque in peripheral arteries (commonly the pelvis or leg) reducing blood flow. Symptoms include leg pain when walking or at rest. If PAD progresses to critical limb ischemia (CLI), the most severe form of PAD, the blood vessels become dangerously narrow and can result in extreme pain, loss of a pulse in feet or legs, wounds that will not heal and possibly limb amputation. CAD is a life-threatening condition afflicting 16.3 million Americans, and a leading cause of death in men and women in the United States. CAD occurs when plaque builds up on the walls of arteries that supply blood to the heart. Significant arterial calcium in plaque on artery walls contributes to poor patient outcomes, higher treatment costs and suboptimal results. CSI is fiercely committed to changing that and improving patient outcomes.

Turn the page to read how our Diamondback Coronary Orbital Atherectomy System helped Jim Collis get his life back.

Orbital atherectomy, along with the stent placement, gave Jim Collis back his marriage and his life.

TREATMENT WITH PURPOSE: A Patient Story

JIM COLLIS AND DR. MERRILL KROLICK

A wife knows when something is wrong. Pam Collis certainly did.

She and her husband, Jim Collis, had been together through Jim's long military contracting career. Once a manager of shipbuilding and repair for the U.S. Navy, Jim was a vibrant man even after he retired. But he had a heart problem that required bypass and, after recovering from surgery, Jim felt better—for a while.

However, over time, different, very troubling symptoms began. Jim grew short of breath. He was acting "weirdly," according to his wife, complaining of mild chest pain any time he was active. For the first time ever, he tired easily. Pam was concerned.

So she urged her husband to seek further treatment. His doctors tried medications and then angioplasty. But the drugs didn't help and surgeons were unable to treat the severely calcified plaque that had built up in Jim's arteries. That calcium was preventing healthy oxygenated blood from reaching his heart.

That was when Jim's physician, Dr. Merrill Krolick, a board-certified interventional cardiologist at The Heart Institute at Largo in Florida, decided to try orbital atherectomy, a procedure that reduces coronary plaque on the artery wall. The procedure took under an hour and was done without general anesthesia, through a small incision in the groin. Once the doctor had treated the calcium, he placed a stent to keep the circumflex artery open and restore blood flow to the heart.

Jim was under local anesthesia during the procedure, feeling the effect as his circumflex artery was modified from a closed-up tunnel with calcified blockage to a clear passage with healthy blood flow. After the procedure was done, Jim looked up at his surgeon and said, "What did you do to me, doc? I feel like I got a heart transplant."

Over the next days and weeks, his condition only improved. Jim was able to walk, then participate in more strenuous physical activities. Gone was the shortness of breath and chest pain. He had more energy than he'd had in a decade. He felt like his life had been restored.

Later, Pam called Dr. Krolick to thank him. Her husband was healthy and strong again. They could travel and go on long walks together. Orbital atherectomy, along with the stent placement, she said, had given them back their marriage and their life.

**Individual patient results may vary*

OPENING UP POSSIBILITY:
A Sales Representative's Perspective

JESSICA BINNIE, CSI

Jessica Binnie has always been drawn to the healthcare industry. In college, she considered pre-med before deciding to study education and communication. When she learned about an opportunity to be a CSI sales representative, a position that would require her to teach physicians about CSI's orbital atherectomy technology, she jumped at the chance to combine her passion for healthcare with her background in education.

Jessica began working as a sales representative for CSI in 2009, selling CSI's peripheral atherectomy devices and teaching physicians to use it in Clearwater and Largo, Fla. That's how she first met Dr. Merrill Krolick five and a half years ago. Dr. Krolick embraced CSI's technology and its ability to sand away calcified plaque in the peripheral arteries of his most challenging patient cases.

Beginning in 2014, CSI began transitioning its sales team from selling either coronary or peripheral products to a dual franchise model, where representatives sell both types of devices. Jessica was excited by the educational opportunities it opened up for her physician clients.

When she told Dr. Krolick about the Diamondback Coronary Orbital Atherectomy System (OAS), he immediately worked to become certified and incorporate it into his practice. He became one of the first physicians in the Tampa Bay area to adopt the new technology. He knew several of his patients would be ideal candidates for the coronary procedure.

Jim Collis was one of those patients. Once active, Jim had suffered for years from angina and exhaustion due to coronary artery disease, and traditional interventions had failed him. Dr. Krolick felt that the Coronary OAS could be Jim's last chance at regaining his quality of life.

With Jessica's counsel, the coronary atherectomy procedure was fast and successful. Jim experienced immediate relief and was so pleased with the results that, at his follow-up appointment, he asked to talk with Jessica directly to thank her.

"He spoke to me on the phone for 20 minutes, telling me how much of an impact this procedure had on him and how it helped him get his life back," Binnie said.

**Individual patient results may vary*

"He told me how much of an impact this procedure had on him and how it helped him get his life back." — Jessica Binnie

LETTER TO STOCKHOLDERS

David L. Martin
President and
Chief Executive Officer

Scott Ward
Chairman of the Board

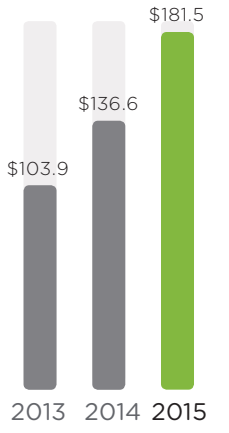
TO OUR STOCKHOLDERS,

In fiscal 2015, CSI continued to build on the success from the prior year. On the top line, we delivered a 33 percent gain over fiscal 2014, our second year in a row exceeding 30-plus percent growth. Moreover, we've positioned CSI as the leader in peripheral and coronary atherectomy—with effective systems backed by strong clinical data.

The patient populations we treat are large and underserved. In the United States, there are four million patients with critical limb ischemia, or CLI, largely caused by calcified plaque. In addition, heart disease claims more than 600,000 lives in the United States each year. According to estimates, significant arterial calcium is present in nearly 40 percent of patients undergoing a percutaneous coronary intervention (PCI). Calcium is an often overlooked enemy of physicians, and the importance of reducing it continues to gain mindshare in the medical community.

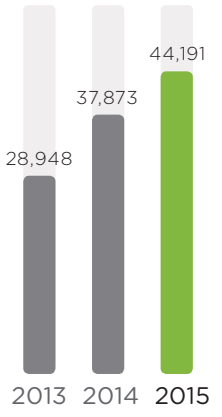
The simple and powerful fact is that the Diamondback 360® devices deliver consistent, durable outcomes for

FINANCIAL HIGHLIGHTS For the fiscal year ended June 30

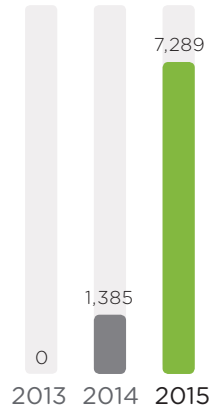


Revenue
(in millions)

Gross
Margin



Peripheral
Units Sold



Coronary
Units Sold

patients with calcified plaque. Our revenue gains in fiscal 2014 and 2015 are evidence of this and demonstrate our expansion of the vascular interventional market by providing physicians with unique tools to treat patients who were previously difficult to treat.

CORONARY MOMENTUM BUILDS

According to the American Heart Association, 16.3 million people in the United States have been diagnosed with CAD. According to estimates, significant arterial calcium is present in nearly 40 percent of patients undergoing a PCI. This translates into an estimated $1.5 billion market opportunity. CSI's Coronary OAS is the only device approved to treat severe coronary calcium.

Sales of Diamondback 360 Coronary OAS continued to ramp in fiscal 2015, reaching $28.5 million. To date, we've sold nearly 9,000 coronary devices, and those numbers are building as physicians adopt our technology. We expect strong coronary growth in fiscal 2016 with the completion of our sales force expansion and dual franchise representative training.

On the coronary clinical science front, we made ongoing progress during the year with our COAST study, and we also released noteworthy two-year ORBIT II clinical data. Both studies are detailed in the "Clinical Research" section following this letter—which also contains information on our peripheral studies.

FDA CLEARS NEW PERIPHERAL DEVICES

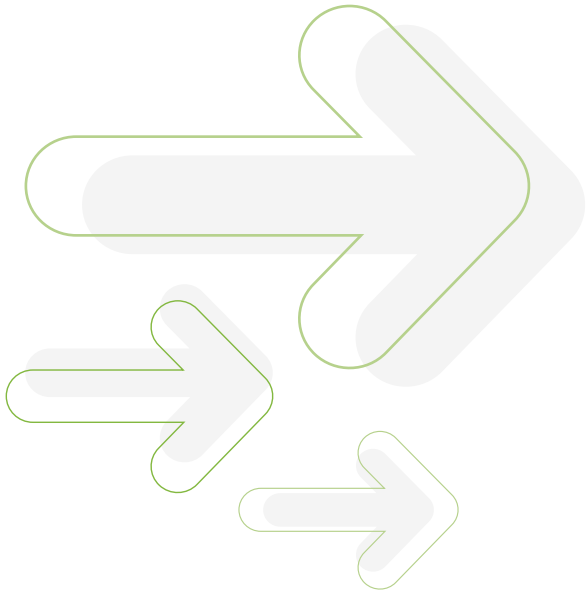
An estimated 18 million people in the United States have PAD and nearly 4 million have CLI—the most severe form of PAD. To help those critically ill patients, we continue to develop enhancements to our product line to further advance our leadership in treating calcified lesions. In April, we received FDA clearance for a new, 145 cm 4 French 1.25 Solid Diamondback 360 Peripheral OAS, an extension of our 60 cm 4 French product portfolio that we began rolling out in calendar 2014. This new clearance expands our minimally invasive product portfolio with enhanced devices. Physicians now have the ability to treat PAD below the knee through small access sites in the groin or to treat the upper leg from access sites below the knee.

Additionally, in July, we secured another FDA clearance for our new ViperWire Advance® Peripheral Guide Wire with Flex Tip for use with our Peripheral OAS. The new guide wire provides physicians with improved flexibility, navigation and ease of use—particularly in hard-to-reach, tortuous vessels—when treating arterial calcium associated with PAD.

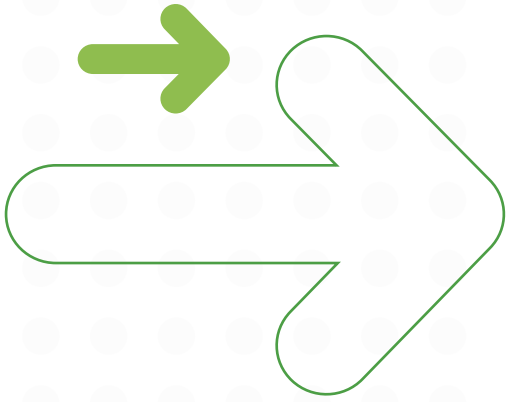
We believe the current CLI PAD market in the United States represents a $12 billion opportunity. Introducing new, innovative devices strengthens our position and broadens our potential in this large, underserved market.

"CSI is committed to helping physicians successfully address the most difficult vascular disease states."

— David L. Martin, CEO



"Fiscal year 2015 revenues rose to $181.5 million, up 33 percent from $136.6 million last year. And gross margin remained strong at 78 percent."



ADOPTION DRIVES FINANCIAL RESULTS

Physicians' rapid adoption of our Coronary OAS and unique peripheral products backed by mounting clinical data have been catalysts for revenue growth. Fiscal year 2015 revenues rose to $181.5 million, up strongly from $136.6 million last year. And gross margin remained strong at 78 percent.

Operating expenses rose 26 percent, reflecting planned investments, including sales force expansion and training, and coronary product commercialization. Adjusted EBITDA* loss improved to $(15.6) million, while the net loss totaled $(32.8) million, or $(1.04) per common share, compared to $(35.3) million, or $(1.25) per common share, in fiscal 2014.

A SALES FORCE EVOLUTION

CSI is in the final stages of an 18-month plan to transform our sales force. One year ago, our team was divided into two separate groups, representatives who sold our coronary system and those who sold the peripheral system—there was no synergy in the sales process.

Today, we are expanding our sales force and simultaneously training our clinically focused sales organization to sell both systems in small span of control territories.

During fiscal 2015, CSI's dual franchise representatives met our productivity goals and significantly outperformed the company's peripheral-only representatives. The process of expanding and training our sales force is challenging, but successful completion of this evolution will set the foundation for high growth and profit for years to come. This model allows us to be service intensive and relationship strong in every major domestic market, positioning us to help expand vascular interventions for the large underserved patient population with calcified artery disease.

LEADING THE ORBITAL EVOLUTION

We enter 2016 as the market leader in atherectomy. CSI is committed to helping physicians successfully address the most difficult vascular disease states. We do this through clinical rigor, constant innovation and a defining drive to improve patient outcomes.

We will expand this commitment by working with leading physicians to reduce the burden of PAD and CLI, which, left untreated, can lead to amputation. Our commitment is not only to the patient, but also to the healthcare system. Our mission is to raise PAD awareness with a specific focus on increasing the treatment of CLI with a goal of reducing the number of PAD and CLI related amputations from 160,000 to under 100,000 within three years.

Our unique, low-profile Diamondback 360 is the device physicians rely on to reduce calcified plaque and improve patient outcomes. As more physicians and their patients join our orbital evolution and experience firsthand the performance of our product line—and our entirely unique mechanism of action—we are confident that we will be able to capitalize on the enormous opportunity before us.

We look forward to completing the optimization and expansion of our sales organization to drive further OAS adoption and help treat the millions of patients suffering from PAD and CAD.

Sincerely,

David L. Martin
President and Chief Executive Officer
October 9, 2015

Scott Ward
Chairman of the Board

*For a reconciliation of the non-GAAP financial measure referred to as adjusted EBITDA, please refer to the table on page 34 of Form 10-K.

CLINICAL RESEARCH

ORBIT II TWO-YEAR RESULTS

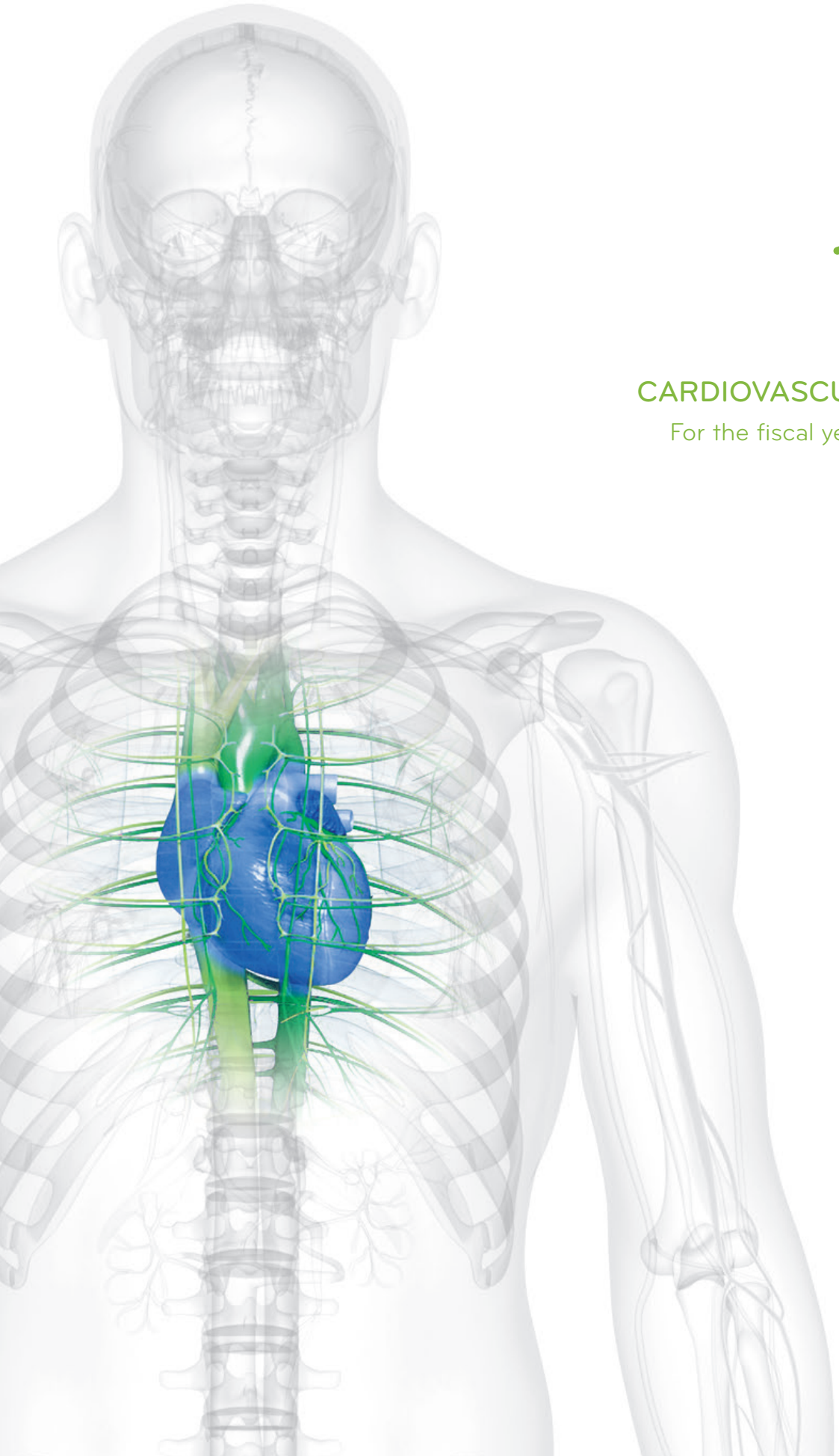
In February 2015, the company released two-year data from its ORBIT II study of CSI's Diamondback 360 Coronary OAS in treating severely calcified lesions. Results demonstrated high rates of freedom from major adverse coronary events (MACE) of 80.6 percent and freedom from target lesion revascularization of 93.8 percent. Moreover, patients treated with the Diamondback 360 Coronary OAS demonstrated shorter lengths of hospital stay and lower mortality than standard of care, providing an estimated cost savings of up to $4,913 per patient for the treating institutions at one year.

LIBERTY 360°

CSI continued enrolling patients in its post-market study, LIBERTY 360°, during fiscal 2015 and is on track to complete enrollment in early 2016. The study is evaluating the acute and long-term clinical and economic outcomes of the company's orbital atherectomy system in treating PAD. As a prospective, observational, multi-center post-market study, LIBERTY 360° will enroll up to 1,200 patients at up to 100 sites across the United States, including patients with claudication (painful circulatory problems), critical limb ischemia (a severe form of PAD) and those scheduled for amputation.

COAST

In July 2015, CSI completed patient enrollment in the Coronary Orbital Atherectomy System Trial (COAST). The study will assess the safety and efficacy, as well as economic outcomes, of CSI's investigational micro crown OAS in treating severely calcified coronary lesions in patients suffering from coronary disease. In total, 100 patients were enrolled in the COAST study at 12 American and 5 Japanese sites. The COAST study will provide data to help secure commercial approval for the second generation Coronary OAS device in the world's two largest atherectomy markets, Japan and the United States.



10-K

CARDIOVASCULAR SYSTEMS, INC

For the fiscal year ended June 30, 2015

EXECUTIVE OFFICERS

David L. Martin
President and Chief Executive Officer

Laurence L. Betterley
Chief Financial Officer

Kevin J. Kenny
Chief Operating Officer

Paul A. Koehn
Senior Vice President,
Quality and Operations

Robert J. Thatcher
Chief Healthcare Policy Officer

HEADQUARTERS

Cardiovascular Systems, Inc.
1225 Old Highway 8 NW
St. Paul, Minnesota 55112

BOARD OF DIRECTORS

Scott R. Ward
Chairman
Managing Director
SightLine Partners;
President
Raymond Holdings

Scott Bartos
Chairman, President and
Chief Executive Officer
Rural/Metro Corporation

Brent Blackey
President and Chief Operating Officer
Holiday Companies

Edward Brown
Partner
Health Evolution Partners

William E. Cohn, M.D.
Director of Technology and
Innovation, Texas Heart Institute;
Director, Department of Surgery
Incubator, and Professor of Surgery,
Baylor College of Medicine

Augustine Lawlor
Managing Partner
HealthCare Ventures LLC

David L. Martin
President and Chief Executive Officer
Cardiovascular Systems, Inc.

Leslie L. Trigg
Chief Executive Officer
Outset Medical

TRANSFER AGENT AND REGISTRAR

For change of name,
address or to replace lost
stock certificates, contact:

American Stock Transfer &
Trust Company, LLC
6201 15th Avenue
Brooklyn, New York 11219
info@amstock.com
www.amstock.com
800.937.5449

INDEPENDENT ACCOUNTANTS

PricewaterhouseCoopers LLP
Minneapolis, Minnesota

CORPORATE COUNSEL

Fredrikson & Byron, P.A.
Minneapolis, Minnesota

INVESTOR RELATIONS

Jack Nielsen
651.202.4919
j.nielsen@csi360.com

ANNUAL MEETING

The annual meeting
of the stockholders of
Cardiovascular Systems, Inc.
will be held November 18, 2015,
at 10:00 a.m. CT at:

Cardiovascular Systems, Inc.
1225 Old Highway 8 NW
St. Paul, Minnesota 55112

FORWARD-LOOKING STATEMENT

Certain statements in this annual report are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 and are provided under the protection of the safe harbor for forward-looking statements provided by that Act. For example, statements in this report regarding (i) estimates of numbers of patients, diagnoses and procedures; (ii) our expansion of the vascular interventional market; (iii) growth and dual-franchise training of our sales organization; (iv) successful completion of our sales evolution setting the foundation for high growth and profit for years to come; (v) the expansions of vascular interventions for the large, underserved patient populations with calcified artery disease; (vi) the $1.5 billion market opportunity to treat severe coronary calcium; (vii) future growth, including our expectation of strong coronary growth in fiscal 2016; (viii) the $12-plus billion market opportunity of the U.S. PAD market; (ix) new products; (x) our goal to aid in the reduction of the number of PAD and CLI related amputations from 160,000 to under 100,000 within three years; (xi) our ability to capitalize on the enormous opportunity before us; (xii) the LIBERTY 360° trial, including the number of patients expected to be enrolled and the timing of such enrollment; and (xiii) the COAST trial, including the potential to secure commercial approval in Japan, are forward-looking statements. These statements involve risks and uncertainties that could cause results to differ materially from those projected, including, but not limited to, regulatory developments in the U.S. and foreign countries; FDA and similar foreign clearances and approvals; approval of our products for distribution in foreign countries; approval of products for reimbursement and the level of reimbursement; dependence on market growth; agreements with third parties to sell their products; the experience of physicians regarding the effectiveness and reliability of our products; the reluctance of physicians, hospitals and other organizations to accept new products; the potential for unanticipated delays in enrolling medical centers and patients for clinical trials; our ability to identify and work with hospitals on amputation prevention programs; the use of our products in connection with the treatment of CLI; actual clinical trial and study results; the impact of competitive products and pricing; unanticipated developments affecting our estimates regarding expenses, future revenues and capital requirements; the difficulty of successfully managing operating costs; our inability to expand our sales and marketing organization; our ability to manage employee turnover, growth and training; actual research and development efforts and needs; our ability to obtain and maintain intellectual property protection for product candidates; our actual financial resources and our ability to obtain additional financing; fluctuations in results and expenses based on new product introductions, sales mix, unanticipated warranty claims and the timing of project expenditures; general economic conditions; and other factors detailed from time to time in CSI's SEC reports, including its most recent annual report on Form 10-K and subsequent quarterly reports on Form 10-Q. CSI encourages you to consider all of these risks, uncertainties and other factors carefully in evaluating the forward-looking statements contained in this report. As a result of these matters, changes in facts, assumptions not being realized or other circumstances, CSI's actual results may differ materially from the expected results discussed in the forward-looking statements contained in this report. The forward-looking statements made in this report are made only as of the date of this report, and CSI undertakes no obligation to update them to reflect subsequent events or circumstances.

Cardiovascular Systems, Inc.
1225 Old Highway 8 NW
St. Paul, Minnesota 55112
www.csi360.com

T: 651.259.1600
877.CSI.0360
F: 612.677.3355

Product Disclosures:

Peripheral Products
The Stealth 360® PAD System and Diamondback 360® PAD System are percutaneous orbital atherectomy systems indicated for use as therapy in patients with occlusive atherosclerotic disease in peripheral arteries and stenotic material from artificial arteriovenous dialysis fistulae. The systems are contraindicated for use in coronary arteries, bypass grafts, stents or where thrombus or dissections are present. Although the incidence of adverse events is rare, potential events that can occur with atherectomy include: pain, hypotension, CVA/TIA, death, dissection, perforation, distal embolization, thrombus formation, hematuria, abrupt or acute vessel closure, or arterial spasm.

Coronary Product
Indications: The Diamondback 360® Coronary Orbital Atherectomy System (OAS) is a percutaneous orbital atherectomy system indicated to facilitate stent delivery in patients with coronary artery disease (CAD) who are acceptable candidates for PTCA or stenting due to *de novo*, severely calcified coronary artery lesions.

Contraindications: The OAS is contraindicated when the ViperWire guide wire cannot pass across the coronary lesion or the target lesion is within a bypass graft or stent. The OAS is contraindicated when the patient is not an appropriate candidate for bypass surgery, angioplasty, or atherectomy therapy, or has angiographic evidence of thrombus, or has only one open vessel, or has angiographic evidence of significant dissection at the treatment site and for women who are pregnant or children.

Warnings/Precautions: Performing treatment in excessively tortuous vessels or bifurcations may result in vessel damage; The OAS was only evaluated in severely calcified lesions; A temporary pacing lead may be necessary when treating lesions in the right coronary and circumflex arteries; On-site surgical back-up should be included as a clinical consideration; Use in patients with an ejection fraction (EF) of less than 25 percent has not been evaluated. See the instructions for use before performing Diamondback 360 Coronary OAS procedures for detailed information regarding the procedure, indications, contraindications, warnings, precautions, and potential adverse events. For further information, call CSI at 1-877-274-0901 and/or consult CSI's website at www.csi360.com.

Caution: Federal law (USA) restricts this device to sale by or on the order of a physician.

Micro Crown OAS
CSI has commenced its COAST Investigational Device Exemption clinical trial to evaluate the safety and efficacy of its new micro crown orbital technology in treating severely calcified lesions within the coronary arteries.

Caution – Investigational Device. Limited by Federal (or United States) law to investigational use. **This new system is limited by federal law to investigational use and is currently not commercially available in the United States or Japan.**