



“Gaining

*momentum*

with competitive

URGENCY



ANNUAL REPORT 2010

## Corporate Values

**We shall act with integrity in all that we do.**

We are committed to the highest standard of ethical, professional and regulatory conduct, and we will strive always to “do the right thing.”

**Improving patient care is our passion.**

An unyielding commitment to quality is a requirement, and we shall embrace ideas and innovation that permit clinicians to improve patient care.

**Excellence is our standard.**

We shall strive to be the best we can be, constantly seeking opportunities to improve, and conducting our business with competitive urgency.

**The CASMED team is our greatest asset.**

We will respect and empower our co-workers because we know we win together, or lose together.

**We are accountable.**

We will honor our commitments to all our stakeholders including our customers, suppliers, partners, co-workers, and shareholders.



Dear Shareholder,

**This is a new and exciting era at CASMED.** Jeff Baird, Matt Herwig and I welcome this opportunity to share our results and describe our direction for the future. This new management team, along with a Board of Directors that has added four new members in the last three years, has been working as one like-minded team to refocus our business, establish well-defined strategies and prepare for future growth.

In sum, we've taken foundational steps to fortify CASMED's ability to realize the potential we see for our business.

**Our recent accomplishments include:**

- FORE-SIGHT® Absolute Tissue Oximetry revenues increased 29% over prior year. Our momentum in sensor revenue is an indicator of an increase in clinician utilization and adoption of our technology.
- The sale of our blood pressure cuff business, enabling us to return our focus to our more profitable businesses.
- A strengthened balance sheet including no bank debt.
- The addition of three new members to our Board of Directors in 2010, who bring expertise in financial operations, strategic planning, and medical product sales.

In the brief time I have been with CASMED, I have become convinced that we have industry-leading technology in both our FORE-SIGHT Absolute Tissue Oximetry and in our MAXNIBP® Non-Invasive Blood Pressure. I have attended many conferences, and conversed with numerous medical thought leaders, researchers and clinicians. I have been struck by the general, uniform impression that our technology is best-in-class and that the value we create for our customers is measurable and unparalleled. It has also become clear that tissue oximetry solves important problems faced by clinicians and advances the level of care they deliver.



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**WHY TISSUE OXIMETRY MATTERS**

Oxygen is necessary to keep cells alive, and the lack of sufficient oxygenated blood can lead to cell death. In the brain, the organ with the highest requirement for oxygen and the lowest tolerance for oxygen deprivation, low levels of oxygen can, within just a few minutes, cause brain damage resulting in cognitive impairment, stroke, paralysis, or even death.



**Our plan for 2011 and beyond is ambitious.** It includes significant investments in our ground-breaking technologies and top-rated products, and the sales, marketing and distribution required to support them.

Here are some highlights of how we will move our company forward:

**Rationalize our Business**

**Lines** to only those that provide the best opportunities for growth – our FORE-SIGHT Tissue Oximetry, our MAXNIBP Non-Invasive Blood Pressure, our vital signs monitors, and our branded neonatal specialty products. In 2010, the sale of our Statcorp business, discontinuation of our sleep apnea product line, and the termination of our relationship with Analogic to distribute their products are consistent with our growth strategy. These divestitures allow us to focus our efforts and invest our capital in our FORE-SIGHT Tissue Oximetry and traditional Vital Signs Monitoring businesses.

**Refresh our Product**

**Portfolio** with investments in R&D. Specifically, the development of our second-generation FORE-SIGHT monitor and sensors with improved functionality is now underway and should squarely meet our customers' escalating expectations and improve our gross margins. Our MAXNIBP Non-Invasive Blood Pressure technology is being enhanced to sustain our market advantage. We have also begun to redesign our bedside vital signs monitor to enhance our competitive position.

**Reinvigorate our**

**Distribution** with robust marketing programs that bolster our clinical evidence and support selling efforts. We will add to the quality and quantity of our distribution and attempt to expand the overall market for tissue oximetry and to increase our market share.



**FORE-SIGHT ABSOLUTE TISSUE OXIMETRY:**  
Setting the Standard for What's Vital

CASMED's FORE-SIGHT technology provides absolute, best-in-class measurement of tissue oxygenation. FORE-SIGHT was the first to successfully provide accurate absolute measurement, as opposed to trended measurement, of cerebral tissue oxygen saturation. It is still the only tissue oximeter cleared by the FDA for use as an absolute measure of cerebral oxygenation for all patients, regardless of age or weight.

**Actionable accuracy** using Near Infrared Spectroscopy (NIRS) to assess cerebral and tissue oxygen saturation.

**Continuous and consistent** real-time data with spot check capability.

**Precise** measurement in adults, children and babies.

**Patient-tailored algorithm** to account for individual differences including age, weight and skin pigmentation.

**New FORE-SIGHT Advances for Improved Patient Outcomes**

Two numbers displayed simultaneously on the display, facilitating monitoring of both left and right hemispheres of the brain.

Display and calculation of Time Under Threshold (TUT) and Area Under Threshold (AUT). Studies have shown that the cumulative effect of prolonged desaturation events indexed over time is key to predicting poor post-operative outcomes. This new feature allows the clinician to monitor time under a specific threshold and more appropriately guide patient care.

The FDA has cleared FORE-SIGHT's expanded indications for use to include monitoring of skeletal muscle of infants, children and adolescents weighing between 5 and 50kg. This type of monitoring can help clinicians quickly detect ischemic threats, such as those associated with anemia, low-cardiac output or shock.



**Momentous strides have been made to improve our financial position during the last year.**

Our balance sheet was strengthened in 2010 from the combined effects of improved operations, inventory reductions, a significant tax refund, and a private placement of our common stock.

As of December 31, 2010, CASMED had approximately \$4.5 million of cash on hand and no bank debt. This frees us to invest in the growth of our tissue oximetry and traditional monitoring businesses.

We are particularly encouraged by the 29% growth of our FORE-SIGHT tissue oximetry and disposable sensor business in 2010. Sensor sales continue to ramp up quarter over quarter due to a mounting installed base of our monitors and increased utilization rates.

We expect to realize improvements in gross profits for 2011 from productivity increases, inventory control improvements and engineering design enhancements that will drive cost reductions.

*"We are particularly encouraged by the 29% growth of our FORE-SIGHT tissue oximetry revenue."*



**BEST-IN-CLASS**

Monitoring for a Full Spectrum of Patients

**Non-Invasive Blood Pressure**

CASMED's proprietary non-invasive blood pressure measurement technology is sold under the MAXNIBP® brand. Side-by-side competitive comparisons show that our technology is the leader in accuracy, speed of measurement and reliability. These advantages are important, especially in the most challenging clinical situations such as patient transport, post-operative shivering, or any time measurements can be difficult to obtain. MAXNIBP has been selected by industry-leading manufacturers worldwide for use in their multi-parameter systems for settings including pre-hospital transport, bedside patient monitoring, and electrophysiology labs.

**At the Bedside**

CASMED has designed two platforms of bedside monitors around our MAXNIBP technology. These incorporate other best-in-class technologies for parameters such as pulse oximetry, temperature and capnography. The CASMED monitors are used in a range of clinical settings, both human and veterinary, including emergency medical service, medical/surgical units, out-patient care, and procedural sedation. Our blanket agreement with the Department of Veterans Affairs (VA) has been extended through the end of 2011. To date, we have over 12,000 monitors in VA facilities around the country.

**Neonatal Specialty Products**

CASMED manufactures a line of specialty products for neonatal care. Our Klear-Trace® electrodes and NeoGuard® limb boards, reflectors and temperature probes have unsurpassed brand recognition in the NICU, and are relied upon for their high quality and gentleness to delicate neonatal skin.



Like Tom, I couldn't be more excited to have joined the CASMED team. The attraction for me was the **unmatched value CASMED's best-in-class products create for our customers**, and the vast opportunities – both clinical and economic – that CASMED is forging each day.

### Market Potential

As of today, we estimate that the addressable market of tissue oximeter products could be as large as \$1 billion annually, which signifies that we have barely penetrated that market opportunity. Education and clinical support are key to expanding the marketplace. As clinicians are educated about the value of tissue oximetry to improve patient care and outcomes, we believe that this technology will become a standard of care, used in every surgery and monitoring situation where oxygen desaturation may occur. CASMED's FORE-SIGHT technology is setting the standard for tissue oximetry with our superior accuracy and performance, and is well positioned to help grow the market and gain share.

### Absolute Proof

The growing body of published literature showing the benefits of tissue oximetry will be a key element to expanding the marketplace. CASMED's constant pursuit of new technologies backed by solid science is raising the expectations for all tissue oximetry devices. There are now over 100 publications in support of our FORE-SIGHT technology, 52 of which were published in 2010. Currently, various clinical studies are underway around the world showing the efficacy and utility of FORE-SIGHT tissue oximetry. Data-driven clinicians can now access recent publications and opinions from key thought leaders at our "Clinical Corner" on our website.

### CLINICAL PROOF

Dangerous deficits in brain oxygen levels, "desaturation events," can correlate with adverse clinical outcomes. Clinical studies show that low levels of cerebral tissue oxygenation are associated with significant post-surgical complications, increased major organ failure, and even death. These comorbidities and poor patient outcomes also result in increased costs to hospitals.

Once a desaturation event is identified by monitoring tissue oximetry, clinicians can react to the low oxygen level, and often reverse the effects. Monitoring can also help clinicians spot and avoid potential surgical errors such as clamping or occluding an artery.

## Marketing and Sales

We must not lose sight that, along with best-in-class technology, this is very much a people business. In 2011 we will continue to expand and develop our sales force and clinical specialists so they become regarded as the industry's most highly educated resources by our customers and prospects. I believe in creating an environment and culture where the entire company works together toward a common goal, supporting each other to achieve success. We are putting this ethic into all of our marketing and sales efforts, and we are winning.

We are also strengthening our brand messaging – ensuring that we deliver a cogent description of our superior technologies every time we communicate with customers. Clear and timely communication with our sales team is of paramount importance. The exchange of information regarding new clinical applications, sales successes, and competitive information is flowing regularly.

Additionally, CASMED's new "Absolute News" has recently been launched. This is our periodic global newsletter created to provide clinical information for physicians and clinicians on the applications and utility of tissue oximetry, and to highlight new features of FORE-SIGHT. The newsletter includes case reports, clinical summaries, and information on users around the world.

## Distribution

We are working to strengthen our distribution channels in the United States to provide seamless coverage coast to coast. We are targeting key hospitals for new installations and growing our business within our existing customer base.

Internationally, we continue to open new markets and improve our coverage worldwide. We are focusing on increasing penetration in certain markets, particularly in Europe and the Middle East, where we have strong distribution partners. And, in keeping with our commitment to be a valuable resource to customers and prospects, our plans include expanding our team of clinical specialists to support our partners overseas.



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## STANDARD OF CARE

"NIRS is rapidly becoming a standard of care. This is certainly the case in the Cardiac Intensive Care Unit at Children's Hospital Boston, where cerebral NIRS is routinely monitored in the post-operative period... Over recent years we have studied and now routinely use the FORE-SIGHT monitor. Not only are we able to obtain valuable continuous and consistent trend data, more importantly the laser diode (narrower bandwidth) and algorithm incorporating four wavelengths of light (instead of two) provides an absolute brain tissue oxygen saturation (SctO<sub>2</sub>) in adult and pediatric patients. This information allows us to more accurately target treatment to optimize cerebral perfusion and oxygen delivery."

### **Dr. Peter C. Laussen MB, MB, BS**

Chief, Division of Cardiovascular Critical Care  
Department of Cardiology  
DD Hansen Chair in Pediatric Anesthesia  
Children's Hospital Boston

Professor of Anesthesia  
Harvard Medical School  
Boston, Massachusetts

We believe that success is derived from a handful of attributes: a high-quality team, clear priorities and unwavering focus — seeking excellence with competitive urgency.



We are moving the business forward with a greater sense of urgency and speed, making hard decisions thoughtfully and quickly. We are creating momentum to achieve the type of success that all of us at CASMED expect.

CASMED is dedicated to providing innovative solutions for monitoring what's vital. We are committed to that mission, to our patients and our partners, and to our vendors and our employees. With this commitment, we believe we can create sustainable long-term value for our shareholders.



**Thomas M. Patton**  
President &  
Chief Executive Officer

**Jeffery A. Baird**  
Chief Financial Officer

**Matthew J. Herwig**  
Vice President,  
Global Sales & Marketing

April 20, 2011

# Corporate Information

## Corporate Headquarters

CAS Medical Systems, Inc.  
44 East Industrial Road  
Branford, CT 06405  
Phone: 203-488-6056  
Fax: 203-488-9438  
Internet: www.casmed.com

## Transfer Agent

American Stock Transfer and Trust Company  
59 Maiden Lane  
New York, NY 10038

## Legal Counsel

Wiggin and Dana LLP  
One Century Tower  
265 Church Street  
New Haven, CT 06508

## Independent Public Accountants

J. H. Cohn LLP  
180 Glastonbury Boulevard  
Glastonbury, CT 06033

## Form 10-K

Additional copies of our Form 10-K Report for the year ended December 31, 2010, filed with the Securities and Exchange Commission, are available to stockholders by writing to the Company to the attention of the Chief Financial Officer.

## Annual Meeting

The Company's Annual Meeting of Stockholders will be held at 10:30 a.m. on June 8, 2011, at The WoodWinds, 29 Schoolground Road, Branford, CT.

## Market for the Registrant's Common Equity

The Company's common stock trades on the NASDAQ Global Market under the symbol "CASM". The following table shows the high and low sales prices for the Company's common stock during each quarterly period for the last two years.

QUARTER ENDED	HIGH	LOW
March 31, 2009	\$ 2.18	\$ 0.90
June 30, 2009	\$ 2.23	\$ 1.15
September 30, 2009	\$ 3.90	\$ 1.16
December 31, 2009	\$ 2.12	\$ 1.50
March 31, 2010	\$ 2.30	\$ 1.53
June 30, 2010	\$ 2.04	\$ 1.26
September 30, 2010	\$ 2.51	\$ 1.63
December 31, 2010	\$ 3.54	\$ 2.09

## Board of Directors

**Louis P. Scheps**  
*Chairman of the Board*

**Jerome Baron**  
*Vice Chairman and Managing Director,*  
Brean Murray, Carret & Co., LLC

**Lawrence S. Burstein**  
*President, Unity Venture Capital Associates, Ltd.*

**Evan Jones**  
*Managing Director, jVEN Capital, LLC*

**Thomas M. Patton**  
*President and Chief Executive Officer*

**Gregory P. Rainey**  
*President, CCI Performance Group, LLC;*  
*Director, RTI Biologics, Inc.*

**Kenneth R. Weisshaar**  
*Director, Orthofix International N.V.*

## Executive Officers

**Thomas M. Patton**  
*President & Chief Executive Officer*

**Jeffery A. Baird**  
*Chief Financial Officer*

**Matthew J. Herwig**  
*Vice President, Global Sales & Marketing*



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