

CAS MEDICAL SYSTEMS INC

Form 424B2

February 11, 2015

TABLE OF CONTENTS

Filed Pursuant to Rule 424(b)(2)

Registration No. 333-188844

Prospectus Supplement

(To the Prospectus dated May 24, 2013)

6,200,000 Shares

CAS MEDICAL SYSTEMS, INC.

Common Stock

\$1.30 per share

We are offering 6,200,000 shares of our common stock. Our common stock is listed on The Nasdaq Capital Market under the symbol "CASM." On February 10, 2015, the last reported sale price for our common stock was \$1.35 per share.

Investing in our common stock involves risks. You should review carefully the risks and uncertainties described under the heading "Risk Factors" on Page S-5 of this Prospectus Supplement and on Page 4 of the accompanying Prospectus and any related Free Writing Prospectus and under "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2013 incorporated by reference into this Prospectus Supplement.

	Per share	Total
Public offering price	\$ 1.30	\$ 8,060,000
Underwriting discount(1)	\$ 0.078	\$ 483,600
Proceeds to CAS Medical Systems, Inc., before expenses	\$ 1.222	\$ 7,576,400

(1)

In addition to the underwriting discount, we have agreed to pay up to \$95,000 of the accountable fees and expenses of the underwriter in connection with this offering, which includes the fees and expenses of the underwriter's counsel. See "Underwriting" for more information.

We have granted the underwriter an option to purchase up to an additional 930,000 shares of common stock from us at the public offering price, less the underwriting discount, within 30 days from the date of this prospectus supplement to cover overallocments, if any.

As of December 19, 2014, the aggregate market value of our common stock held by non-affiliates was approximately \$29,656,615 based on 19,477,333 shares of outstanding common stock, of which 4,031,179 shares were held by affiliates, and a price of \$1.92 per share, which was the last reported sale price of our common stock as quoted on The Nasdaq Capital Market on that date. We have not offered any securities pursuant to General Instruction I.B.6 of Form S-3 during the prior 12 month calendar period that ends on, and includes, the date of this prospectus supplement. Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this Prospectus Supplement is truthful or complete. Any representation to the contrary is a criminal offense.

Craig-Hallum Capital Group

The date of this prospectus supplement is February 11, 2015

TABLE OF CONTENTS

TABLE OF CONTENTS

Prospectus Supplement

	Page
<u>About this Prospectus Supplement</u>	<u>S-1</u>
<u>Prospectus Supplement Summary</u>	<u>S-2</u>
<u>Risk Factors</u>	<u>S-5</u>
<u>Forward-Looking Statements</u>	<u>S-13</u>
<u>Use of Proceeds</u>	<u>S-14</u>
<u>Dilution</u>	<u>S-15</u>
<u>Price Range of Common Stock</u>	<u>S-16</u>
<u>Underwriting</u>	<u>S-17</u>
<u>Legal Matters</u>	<u>S-19</u>
<u>Experts</u>	<u>S-19</u>
<u>Where You Can Find More Information</u>	<u>S-19</u>
<u>Incorporation by Reference</u>	<u>S-19</u>

Prospectus

	Page
<u>About this Prospectus</u>	<u>1</u>
<u>Summary</u>	<u>2</u>
<u>Risk Factors</u>	<u>4</u>
<u>Use of Proceeds</u>	<u>5</u>
<u>Description of Common Stock and Preferred Stock</u>	<u>6</u>
<u>Description of Warrants</u>	<u>11</u>
<u>Description of Units</u>	<u>13</u>
<u>Legal Ownership of Securities</u>	<u>14</u>
<u>Plan of Distribution</u>	<u>17</u>
<u>Legal Matters</u>	<u>19</u>
<u>Experts</u>	<u>19</u>
<u>Where You Can Find More Information</u>	<u>19</u>
<u>Incorporation By Reference</u>	<u>19</u>

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are a part of a registration statement that we filed with the Securities and Exchange Commission (“SEC”) utilizing a “shelf” registration process. This document contains two parts. The first part consists of this prospectus supplement, which provides you with specific information about this offering. The second part, the accompanying prospectus, provides more general information, some of which may not apply to this offering. If the description of this offering varies between this prospectus supplement and the accompanying prospectus, you should rely on the information contained in this prospectus supplement. Both this prospectus supplement and the accompanying prospectus include or incorporate by reference important information about us, our common stock and other information you should know before investing in our common stock. Before purchasing any shares of our common stock, you should carefully read both this prospectus supplement and the accompanying prospectus, together with the additional information described under the headings “Where You Can Find More Information” and “Incorporation by Reference.”

You should rely only on the information that we have provided or incorporated by reference in this prospectus supplement, the accompanying prospectus and any related free writing prospectus that we may authorize to be provided to you. We have not authorized any dealer, salesman or other person to give any information or to make any representations other than those contained or incorporated by reference in this prospectus supplement, the accompanying prospectus or any related free writing prospectus that we may authorize to be provided to you. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus supplement or the accompanying prospectus. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you.

This prospectus supplement and the accompanying prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor does this prospectus supplement or the accompanying prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus supplement, the accompanying prospectus or any related free writing prospectus is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even if this prospectus, any applicable prospectus supplement or any related free writing prospectus is delivered or securities are sold on a later date.

S-1

TABLE OF CONTENTS

Prospectus supplement summary

This summary highlights selected information from this prospectus supplement, the accompanying prospectus and in the documents we incorporate by reference and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus supplement, including the risks of investing discussed under “Risk Factors” beginning on page S-5, the information incorporated by reference, including our financial statements, the accompanying prospectus and the exhibits to the registration statement of which this prospectus supplement is a part.

Throughout this prospectus supplement, (i) references to “CAS,” “CASMED,” the “Company,” “we,” “us” and “our” refer to CAS Medical Systems, Inc., a Delaware corporation, unless the context otherwise requires; (ii) references to “common stock” refer to the Company’s common stock, par value \$0.004 per share; and (iii) references to “preferred stock” refer collectively to the Company’s Series A Convertible Preferred Stock, par value of \$0.001 per share and Series A Exchangeable Preferred Stock, par value of \$0.001 per share.

The Company

We are a medical technology company that develops, manufactures and markets non-invasive patient monitoring products that are vital to patient care. Our products include the FORE-SIGHT® and FORE-SIGHT ELITE® Absolute Tissue Oximeters and sensors and our Traditional Monitoring products, which include MAXNIBP® and MAXIQ™ blood pressure measurement technologies, monitoring products for the bedside, including the 740 SELECT® monitor and neonatal vital signs supplies. These products are designed to provide accurate, non-invasive, biologic measurements that guide clinicians to provide better patient care.

We believe that our FORE-SIGHT Absolute Tissue Oximetry products place CASMED in a unique position to expand the clinical application for monitoring tissue oxygenation. Standard non-invasive parameters such as pulse oximetry and blood pressure only provide surrogate markers of tissue oxygen delivery. The indirect nature of these parameters forces clinicians to infer the adequacy of oxygenation in vital organs, including the brain. However, data convincingly show that clinician inferences of cerebral oxygenation during medical procedures often does not correlate with actual tissue oxygenation levels and that potentially dangerously low levels of cerebral oxygenation often go unrecognized. Therefore, direct monitoring of cerebral oxygenation provides a unique and powerful tool that allows clinicians to recognize and treat potentially dangerous tissue hypoxia to avoid adverse clinical outcomes.

We report two categories of revenue within one reportable business unit.

- Tissue Oximetry Monitoring — includes sales of our FORE-SIGHT Absolute Tissue Oximeter monitors, sensors and accessories; and

- Traditional Monitoring — includes sales of our traditional vital signs products and services including: (i) sales to Original Equipment Manufacturers (“OEMs”) of our proprietary non-invasive blood pressure technology (MAXNIBP and MAXIQ) for inclusion in the OEM customer’s own multi-parameter monitors; (ii) bedside vital signs monitors and accessories incorporating various combinations of measurement parameters for both human and veterinary use such as non-invasive blood pressure, pulse oximetry, electrocardiography (ECG), temperature, and capnography (CO₂ measurements); (iii) neonatal intensive care vital signs supplies including electrodes and skin temperature probes; and (iv) service repair.

Our principal executive offices are located at 44 East Industrial Road, Branford, CT 06405, and our telephone number is (203) 488-6056. We maintain a website at www.casmed.com where general information about us is available. We are not incorporating the contents of the website into this prospectus supplement.

S-2

TABLE OF CONTENTS

Recent Developments

We have completed our fourth quarter and full year ended December 31, 2014. Although we have not yet finalized and announced our consolidated financial results for these periods, our preliminary financial data reflect revenues of approximately \$5.8 million and \$22.9 million for fourth quarter and full year ended December 31, 2014, respectively. Sales of our FORE-SIGHT Oximetry products for the fourth quarter of 2014 were approximately \$3.2 million, an increase of approximately 26% from the same prior year period, while sales of our traditional monitoring products were approximately \$2.6 million, a decrease of approximately 23% from the same prior year period. For the full year 2014, sales of our FORE-SIGHT Oximetry products were approximately \$12.4 million, an increase of approximately 37% over 2013 while sales of our traditional monitoring products were approximately \$10.5 million, or 18% below 2013 levels.

We expect to announce a net loss applicable to common stockholders for the quarter ended December 31, 2014 of approximately \$0.10 – \$0.12 per diluted common share and a net loss applicable to common stockholders of approximately \$0.45 – \$0.48 per diluted common share for the full year 2014.

Cash and cash equivalents were approximately \$4.5 million at December 31, 2014. During the fourth quarter of 2014, the Company borrowed \$1.0 million against its revolving line-of-credit facility with its lender and had available borrowings of approximately \$1.0 million at December 31, 2014.

S-3

TABLE OF CONTENTS

The Offering

Issuer

CAS Medical Systems, Inc.

Common Stock Offered by Us

6,200,000 shares

Common Stock to be Outstanding After Completion of this Offering

25,684,960 shares

Use of Proceeds

We intend to use the net proceeds from this offering primarily for working capital and general corporate purposes. See “Use of Proceeds.”

Risk Factors

Investing in our common stock involves risks. See “Risk Factors” beginning on page S-5 of this prospectus supplement and on page 4 of the accompanying prospectus and any related free writing prospectus and under “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2013 incorporated by reference into this Prospectus Supplement.

Insider Purchases

The underwriter has agreed to sell 40,000 shares of our common stock to Thomas M. Patton, our President and Chief Executive Officer, and 1,605,000 shares of our common stock to Thomas, McNerney & Partners II, L.P. and its affiliates, which entities currently hold shares of our preferred stock, at the public offering price set forth on the cover page of this prospectus supplement.

Market and Trading Symbol

Our common stock is listed on The Nasdaq Capital Market under the symbol “CASM.”

The above information is based upon 19,484,960 shares of common stock outstanding as of January 30, 2015. This information does not include (a) 3,965,704 shares of common stock issuable upon the exercise of outstanding options and warrants to purchase our common stock at a weighted average exercise price of \$1.87 per share, (b) 615,036 shares of common stock reserved for future grants under our outstanding equity compensation plan, subject to increase for awards that expire unexercised or otherwise do not result in the issuance of shares, (c) 83,904 shares of common stock reserved for future issuances under our employee stock purchase plan, (d) 8,057,264 shares issuable upon conversion of our outstanding preferred stock as of December 31, 2014, or (e) any exercise of the underwriter’s over-allotment option.

S-4

TABLE OF CONTENTS

RISK FACTORS

Our business faces many risks. If any of the events or circumstances described in the following risk factors actually occurs, our business, financial condition or results of operations could suffer, and the trading price of our common stock could decline. The risks described below may not be the only risks we face. Additional risks that we do not yet know of or that we currently believe are immaterial may also impair our business operations. You should consider the following risks, as well as the risk factors and other information included or incorporated by reference from our Form 10-K for the year ended December 31, 2013 and other subsequent SEC filings incorporated herein by reference before deciding to invest in our common stock.

Risks Relating to Our Business

We have a recent history of net losses and are subject to risks regarding future liquidity.

We have experienced operating losses during our last six fiscal years. The net loss applicable to common stockholders was \$11,566,161 for the 2013 calendar year and \$6,769,904 for the nine months ended September 30, 2014 and the accumulated deficit was \$29,239,022 as of September 30, 2014. The Company does not anticipate a return to operating profits in the near term and there can be no assurance that we will be able to improve our results of operations in the near term or at all.

The Company's ordinary short-term capital needs are expected to be met from our current cash on hand and amounts available under our revolving line of credit with General Electric Capital Corporation. Cash flows may be impacted by a number of factors, including changing market conditions, market acceptance of the FORE-SIGHT system, and the loss of one or more key customers. The Company may seek additional capital in addition to the net proceeds of this offering; however, there can be no assurance that we will be successful in raising additional capital if the need arises. The failure to raise any necessary additional capital on acceptable terms, or at all, could have a material adverse effect on our business and results of operations.

We are a small company in a highly competitive industry.

Competition from other medical device companies, diversified healthcare companies and research and academic institutions is intense and expected to increase. Many companies engaged in the medical device sector have substantially greater financial and other resources and development capabilities than we do, and have substantially greater experience in testing products, obtaining regulatory approvals and manufacturing, marketing, and distributing medical devices.

Other companies may succeed in developing and commercializing products earlier than we do. In addition to competing with universities and other research institutions in the development of products, technologies and processes, the Company may compete with other companies in acquiring rights to products or technologies from universities. Also, the medical device market is experiencing increasing customer concentration, due to the emergence of large purchasing groups and hospital systems. We cannot assure you that we will develop products that are more effective or achieve greater market acceptance than competitive products, or that our competitors will not succeed in developing products and technologies that are more effective than those being developed by us or that would render our products and technologies less competitive or obsolete. Moreover, there can be no assurance that we will be able to successfully sell to large purchasing groups, which are increasingly looking to suppliers that can provide a broader range of products than we currently offer.

Our business is impacted by customer concentration.

Our five largest customers accounted for approximately 31%, 30% and 36% of revenues for the nine months ended September 30, 2014 and for the years ended December 31, 2013 and 2012, respectively. Among these customers, Physio-Control, Inc. accounted for 9% of revenues during the nine months ended September 30, 2014 and 9% and 11% of revenues during 2013 and 2012, respectively. Also included above are sales to the U.S. Department of Veterans Affairs ("V.A."). When aggregating sales to the individual V.A. hospitals, those sales accounted for 2% of overall sales during the nine months ended September 30, 2014 and 8% and 18% of overall sales for 2013 and 2012, respectively. The Company has a blanket agreement

S-5

TABLE OF CONTENTS

with the V.A. for the purchase of its vital signs monitors through February 15, 2015. The Company does not expect the blanket agreement with the V.A. to be extended. The loss of any significant customer could have a material adverse effect on our financial position and results of operations.

We are devoting substantial resources to the development and marketing of our tissue oximetry products.

We expect to devote a significant amount of resources to continue the development and marketing of our FORE-SIGHT tissue oximetry products. We believe that substantial additional resources are required to further penetrate the markets for these products. Such investments include further research and development, including significant expenditures for clinical studies, equipment for placements at customer sites, further expansion of our selling organization, marketing expenditures and general working capital requirements. There can be no assurance that we will be successful in these endeavors. In addition, since we have limited financial resources, our emphasis on FORE-SIGHT tissue oximetry products may result in a lack of sufficient resources for our other product lines, which may negatively impact our overall financial results.

The sale of our products may result in significant product liability exposure.

As a manufacturer of medical diagnostic equipment, we face product liability claims. We maintain product liability insurance in an aggregate amount of \$5 million. We cannot assure you that this insurance coverage will be adequate to cover any product liability claims that occur in the future or that product liability insurance will continue to be available at reasonable prices. Any product liability judgments or settlements in excess of insurance coverage could have a material adverse effect on our business and results of operations.

Our business could be adversely affected if we cannot protect our proprietary technology or if we infringe on the proprietary technology of others.

Our proprietary technology aids our ability to compete effectively with other companies in certain markets in which we compete. Although we have been awarded, have filed applications for, or have been licensed under numerous patents, these patents may not fully protect our technology or competitive position. Further, our competitors may apply for and obtain patents that will restrict our ability to make and sell our products.

Our competitors may intentionally infringe our patents. Third parties may also assert infringement claims against us. Litigation may be necessary to enforce patents issued to us, to protect our trade secrets or know-how, to defend ourselves against claimed infringement of the rights of others or to determine the scope and validity of the proprietary rights of others. The defense and prosecution of patent suits are both costly and time-consuming, even if the outcome is favorable to us. Such proceedings can be extremely expensive and their outcome very unpredictable.

An adverse outcome in the defense of a patent suit could cause us to lose proprietary rights, subject us to significant liabilities to third parties or require us to license rights from third parties or to cease selling our products. Any of these events could have a material adverse effect on our business, operating results and financial condition. We also rely on unpatented proprietary technology that others may independently develop or otherwise obtain access to.

Our inability to maintain the proprietary nature of our technologies could negatively affect our revenues and earnings. Cost-containment efforts of our customers, purchasing groups, third-party payors, and governmental organizations could adversely affect our sales and profitability.

Many existing and potential customers for our products within the United States have become members of group purchase organizations (GPOs) and integrated delivery networks (IDNs), in an effort to reduce costs. GPOs and IDNs negotiate pricing arrangements with healthcare product manufacturers and distributors and offer the negotiated prices to affiliated hospitals and other members. GPOs and IDNs typically award contracts on a category-by-category basis through a competitive bidding process. Bids are generally solicited from multiple manufacturers with the intention of driving down pricing. Due to the

S-6

TABLE OF CONTENTS

highly competitive nature of the GPO and IDN contracting processes, we may not be able to obtain or maintain contract positions with major GPOs and IDNs across our product portfolio. Furthermore, the increasing leverage of organized buying groups may reduce market prices for our products, thereby reducing our profitability.

While having a contract with a GPO or IDN for a given product category can facilitate sales to members of that GPO or IDN, such contract positions can offer no assurance that sales volumes of those products will be maintained. GPOs and IDNs increasingly are awarding contracts to multiple suppliers for the same product category. Even when we are the sole contracted supplier of a GPO or IDN for a certain product category, members of the GPO or IDN generally are free to purchase from other suppliers. Furthermore, GPO and IDN contracts typically are terminable without cause upon 60 to 90 days' notice. Accordingly, the members of such groups may choose to purchase from our competitors due to the price or quality offered by such competitors, which could result in a decline in our sales and profitability. Distributors of our products also have begun to negotiate terms of sale more aggressively to increase their profitability. Failure to negotiate distribution arrangements having advantageous pricing and other terms of sale could cause us to lose market share and would adversely affect our business, results of operations, financial condition, and cash flows.

Outside the United States, we have experienced pricing pressure from centralized governmental healthcare authorities and increased efforts by such authorities to lower healthcare costs. We frequently are required to engage in competitive bidding for the sale of our products to governmental purchasing agents. Our failure to offer acceptable prices to these customers could adversely affect our sales and profitability in these markets.

Defects or failures associated with our products could lead to recalls or safety alerts and negative publicity.

Manufacturing flaws, component failures, design defects, off-label uses, or inadequate disclosure of product-related information could result in an unsafe condition or the injury or death of a patient. These problems could lead to a recall of, or issuance of a safety alert relating to, our products and result in significant costs and negative publicity.

Due to the strong name recognition of our brands, an adverse event involving one of our products could result in reduced market acceptance and demand for all products within that brand, and could harm our reputation and our ability to market our products in the future. In some circumstances, adverse events arising from or associated with the design, manufacture, or marketing of our products could result in the suspension or delay of regulatory reviews of our applications for new product approvals. We also may undertake a voluntary recall of products or temporarily shut down production lines based on performance relative to our own internal safety and quality monitoring and testing data. Any of the foregoing problems could disrupt our business and have a material effect on our business, results of operations, financial condition, and cash flows.

We depend on distributors for a substantial portion of our revenues. Failure to establish and maintain relationships with distributors could materially and adversely affect our business, financial condition, and results of operations.

We depend on distributors for a substantial percentage of our revenues. Certain of our distribution agreements may contain terms that are not favorable to us, and as our existing distribution agreements expire, we may be unable to renew with our desired distributors on favorable terms or at all. In addition, we seek to limit our dependence on any single distributor by limiting and periodically redefining the scope of each distributor's territory and the range of our products that it sells, which may make us less attractive to some distributors. Furthermore, competition for distributors is intense. We compete for distributors domestically and internationally with other leading medical equipment and device companies that may have higher visibility, greater name recognition and financial resources, and a broader product selection than we do. Our competitors also often enter into long-term distribution agreements that effectively prevent their distributors from selling our products. At times, we may also become engaged in contract disputes or other negotiations with distributors. Consequently, establishing relationships with new distributors, maintaining relationships with existing distributors, and replacing distributors may be difficult and time consuming. Any

S-7

TABLE OF CONTENTS

disruption of our distribution network, including our failure to renew distribution agreements at favorable terms or our failure to successfully negotiate contract disputes, could negatively affect our ability to effectively sell our products and could materially and adversely affect our business, financial condition, and results of operations.

If we are unable to effectively structure and manage our distribution network, actions taken by our distributors could harm our corporate image and cause us to fail to meet our sales goals.

We have limited ability to manage the activities of our distributors, who are independent from us. Our distributors could take one or more of the following actions, some of which we have previously experienced, any of which could have a material adverse effect on our business, prospects, and brand:

- sell products that compete with products that they have contracted to sell for us;
- sell our products outside of our pricing guidelines, distorting the market price of our products;
- sell our products outside their designated territory or to non-authorized end-users, possibly in violation of the exclusive distribution rights of other distributors;
- directly or indirectly distribute products lacking necessary U.S. certifications into the U.S. market in violation of applicable U.S. law;
- fail to adequately promote our products; and/or
- fail to provide proper training, repair and service to our end-users.

Furthermore, our distributors may focus selling efforts only on those products that provide them with the largest margins at the expense of products that offer them smaller margins.

Failure to adequately manage our distribution network or non-compliance by distributors with our distribution agreements could harm our corporate image among end-users of our products and disrupt our sales, resulting in a failure to meet our sales goals.

Our direct sales operations are costly, and the related ongoing operational costs could have a material adverse effect on our business.

We maintain direct operations in the United States and rely on direct sales for a significant portion of our revenues from the United States. Maintaining a direct sales force is costly. In the United States, we typically provide our direct operations personnel with payroll and other benefits that we do not provide independent distributors. Many of these benefits are fixed costs that do not depend on revenue generation. Maintaining these direct operations is costly and ongoing operational costs could have a material adverse effect on our business.

We are subject to significant government regulation.

Our business is subject to varying degrees of governmental regulation in the countries in which we operate. In the United States, our products are subject to regulation as medical devices by the FDA, and by other federal and state agencies. These regulations pertain to the manufacturing, labeling, development and testing of our devices as well as to the maintenance of required records. An FDA regulation also requires prompt reporting by all medical device manufacturers of an event or malfunction involving a medical device where the device caused or contributed to death or serious injury or is likely to do so.

Federal law provides for several routes by which the FDA reviews medical devices before their entry into the marketplace. Medical products of the type currently being marketed and under development by us are subject to regulation under the FD&C Act and numerous acts and amendments such as the Quality System Regulations which

replaced the regulations formerly called Good Manufacturing Practices. In addition, depending upon product type, we must also comply with those regulations governing the Conduct of Human Investigations, Pre-Market Regulations and other requirements, as promulgated by the FDA. The FDA is authorized to inspect a device, its labeling and advertising, and the facilities in which it is manufactured in order to ensure that the device is not manufactured or labeled in a manner which could cause it to be injurious to health.

S-8

TABLE OF CONTENTS

The FDA has adopted regulations which classify medical devices based upon the degree of regulation believed necessary to assure safety and efficacy. A device is classified as a Class I, II, or III device. Class I devices are subject only to general controls. Class II devices, in addition to general controls, are or will be subject to “performance standards.” Most devices are also subject to the 510(k) pre-market notification provision. In addition, some Class III devices require FDA pre-market approval before they may be marketed commercially because their safety and effectiveness cannot be assured by the general controls and performance standards of Class I or II devices. Our products are primarily Class I and II devices and several of them have required FDA notification under Section 510(k) of the FD&C Act.

Satisfaction of clearance or approval requirements may take up to several years or more and may vary substantially based upon the type, complexity and novelty of the product. The effect of government regulation may be to delay marketing of new products for a considerable or indefinite period of time, to impose costly procedures upon our activities and to furnish a competitive advantage to larger companies that compete with us. We cannot assure you that FDA or other regulatory clearance or approval for any products we develop will be granted on a timely basis, if at all, or, once granted, that clearances or approvals will not be withdrawn or other regulatory action taken which might limit our ability to market our proposed products. Any delay in obtaining or failure to obtain these clearances or approvals would adversely affect the manufacturing and marketing of our products and the ability to generate additional product revenue. The FDA also has the authority to, among other things, deny marketing approval until all regulatory protocols are deemed acceptable, halt the shipment of defective products, and seize defective products sold to customers. Adverse action or publicity from the FDA, if any, could have a negative impact upon our results from operations.

Federal regulatory reforms may adversely affect our ability to successfully market our products and impact our financial condition.

Recent federal efforts to reform the U.S. health care industry have resulted in legislation such as the Patient Protection and Affordable Care Act (“Affordable Care Act”) and other measures which will effect changes in healthcare delivery and coverage and public and private reimbursements for services performed. Federal initiatives may also affect state programs. Legislative changes may affect hospital market expenditures for medical devices, the type and volume of procedures performed, and the demand for new and innovative products. These changes could be significant and may adversely affect the demand for our products, our results of operations, cash flows, and our overall financial condition. The Affordable Care Act provisions are funded by a variety of taxes including a medical device excise tax (“MDET”) of 2.3% imposed on manufacturers and importers of certain medical devices. The Company became subject to the MDET effective January 1, 2013. MDET expenses were \$330,000 and \$302,000 for 2014 and 2013, respectively. Outside of the U.S., healthcare delivery and reimbursement systems vary by country. Efforts to control rising healthcare costs, changes in government sponsored programs and participation and various other economic factors may impact our ability to successfully market our products outside of the U.S.

Our products may become rapidly obsolete.

The areas in which we are developing, distributing, and/or licensing products involve rapidly developing technology. Others may develop products that might cause products being developed, distributed or licensed by us to become obsolete or uneconomical or result in products superior to our products.

Our international business is subject to currency, regulatory, and related risks.

Our international sales subject us to currency and related risks. We expect that international sales will continue to constitute a significant portion of our business. Although we sell our products in United States dollars and only have limited currency risks, an increase in the value of the United States dollar relative to foreign currencies in our international markets could make our products less price competitive in these markets. Our international sales accounted for 23% and 22% of our total net sales for the 2014 and 2013 fiscal years, respectively.

S-9

TABLE OF CONTENTS

Our business practices in countries other than the United States are governed by U.S. laws, including the Foreign Corrupt Practices Act, as well as local laws and regulatory schemes. While we believe we maintain a robust compliance program requiring adherence by our employees and distribution partners to all U.S. and foreign laws and regulatory schemes, there can be no assurances that our foreign distribution partners so comply, which failure could cause the Company to suffer the loss of the ability to sell in those jurisdictions or other liability.

An acquisition of the company may be hindered.

Our Board of Directors is authorized to issue from time to time, without stockholder authorization, shares of preferred stock, in one or more designated series or classes. We are also subject to a Delaware statute regulating business combinations. These provisions could discourage, hinder or preclude an unsolicited acquisition of the Company and could make it less likely that stockholders receive a premium for their shares as a result of any takeover attempt.

We have outstanding shares of preferred stock with rights and preferences superior to those of our common stock.

The issued and outstanding shares of Series A Convertible Preferred Stock and Series A Exchangeable Preferred Stock grant the holders of such preferred stock anti-dilution, voting, accretion, dividend and liquidation rights that are superior to those held by the holders of our common stock. In addition, should we issue, or be deemed to issue, certain additional shares of common stock for a price below \$2.389 per share, as amended, the conversion price of the Series A Convertible Preferred Stock and Series A Exchangeable Preferred Stock shall be lowered based on a weighted average formula, which will have the effect of immediately diluting the holders of our common stock.

Ownership of our shares is concentrated in the hands of a few investors which could limit the ability of our other stockholders to influence the direction of the company.

As calculated by SEC rules of beneficial ownership, Thomas, McNerney & Partners and their affiliates, and Deerfield Management Company, L.P. each beneficially owned approximately 29.3% and 16.4%, respectively, of our common stock as of the dates of their most recent public filings with the SEC. Accordingly, although they are not affiliated with one another, they collectively may have the ability to significantly influence or determine the election of all of our directors or the outcome of most corporate actions requiring stockholder approval. They may exercise this ability in a manner that advances their best interests and not necessarily those of our other stockholders.

Sales of a substantial number of shares of our common stock in the public market originally issued through the conversion of preferred stock, exercise of options or warrants, or additional financing transactions could adversely affect the market price of our common stock and would have a dilutive effect upon our stockholders.

Historically, our common stock has been thinly traded. This low trading volume may have had a significant effect on the market price of our common stock, which may not be indicative of the market price in a more liquid market. As of January 27, 2015, options and warrants for the purchase of 3,965,704 shares of our common stock were outstanding and as of December 31, 2014, 8,057,264 shares of common stock were issuable upon conversion of our outstanding Series A Convertible Preferred Stock and Series A Exchangeable Preferred Stock.

We depend highly on certain key management personnel.

We believe that our future success will depend to a significant extent on the efforts and abilities of our senior management, in particular, Thomas Patton, our President and Chief Executive Officer, Brian Wagner, our Chief Commercial Officer, Dr. Paul Benni, our Chief Scientific Officer, Dr. John Gamelin, our Vice President of Research and Development, and Jeffery Baird, our Chief Financial Officer. The loss of the services of these executives could have a material adverse effect on our business and results of operations.

S-10

TABLE OF CONTENTS

We do not expect to pay cash dividends.

We have not paid cash dividends on our common stock since inception, and at this time we do not anticipate that we will pay cash dividends on our common stock in the foreseeable future. Our loan and security agreement with General Electric Capital Corporation precludes us from paying cash dividends. Furthermore, we are currently precluded from issuing dividends on our common stock unless we receive the consent of holders of a majority of our outstanding Series A Convertible Preferred Stock and Series A Exchangeable Preferred Stock.

Risks Related to Our Common Stock and this Offering

Our stock price may be volatile and you may lose all or a part of your investment.

While our common stock is listed on The Nasdaq Capital Market, an active public market for our common stock may not be sustained. You may not be able to sell your shares quickly or at the current market price if trading in our stock is not active. Our stock price could fluctuate significantly due to a number of factors, including:

- achievement or rejection of regulatory approvals by our competitors or by us;
- announcements of new technological innovations or new commercial products by our competitors or by us;
- developments concerning proprietary rights, including patents;
- economic or other crises or other external factors;
- conditions or trends in the medical device or healthcare industries;
- litigation and other developments relating to our patents or other proprietary rights or those of our competitors;
- governmental regulation and legislation in the United States and foreign countries;
- changes in securities analysts' estimates of our performance or our failure to meet analysts' expectations;
- sales of substantial amounts of our stock;
- variations in product revenue and profitability; and
- variations in our anticipated or actual operating results.

Many of these factors are beyond our control, and we believe that period-to-period comparisons of our financial results will not necessarily be indicative of our future performance. If our revenues in any particular period do not meet expectations, we may not be able to adjust our expenditures in that period, which could cause our operating results to suffer. If our operating results in any future period fall below the expectations of securities analysts or investors, our stock price may fall by a significant amount.

In addition, the stock markets in general, and The Nasdaq Capital Market and the market for medical device companies in particular, have experienced extreme price and volume fluctuations recently. These fluctuations often have been unrelated or disproportionate to the operating performance of these companies. These broad market and industry factors may adversely affect the market price of our common stock, regardless of our actual operating performance.

Investors in this offering will suffer immediate dilution.

Because the price per share of our common stock being offered is substantially higher than the book value per share of our common stock, you will suffer substantial dilution in the net tangible book value of the common stock you purchase in this offering. If you purchase shares of common stock in this offering, you will suffer immediate and substantial dilution of \$0.961 per share in the net tangible book value of the common stock. See the section entitled "Dilution" below for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering.

S-11

TABLE OF CONTENTS

We will have considerable discretion over the use of the proceeds of this offering and may not realize an adequate return.

We will have considerable discretion in the application of the net proceeds of this offering. We have not determined the amount of net proceeds that we will apply to various corporate purposes. We may use the proceeds for purposes that do not yield a significant return, if any, for our stockholders.

S-12

TABLE OF CONTENTS

FORWARD-LOOKING STATEMENTS

The Private Securities Litigation Reform Act of 1995 provides a “safe harbor” for certain forward-looking statements. Certain statements in this prospectus supplement, the accompanying prospectus and the documents incorporated herein and therein by reference constitute “forward-looking statements.” Statements relating to the future performance of the Company are subject to many factors including, but not limited to, the customer acceptance of the products in the market, the introduction of competitive products and product development, the impact of any product liability or other adverse litigation, working capital and availability of capital, commercialization and technological difficulties, the impact of actions and events involving key customers, vendors, lenders, competitors, and other risks detailed in this prospectus supplement, the accompanying prospectus and the documents incorporated herein and therein by reference, and other subsequent SEC filings.

Such statements are based upon the beliefs and expectations of the Company’s management as of the date such statement was made and are subject to significant risks and uncertainties. Actual results may differ materially from those set forth in the forward-looking statements. When used in this prospectus supplement, the accompanying prospectus and the documents incorporated herein and therein by reference, the terms “aim,” “anticipate,” “believe,” “estimate,” “expect,” “may,” “objective,” “plan,” “possible,” “potential,” “project,” “will,” and similar expressions which indicate events and trends identify forward-looking statements. The forward-looking statements contained in this prospectus supplement, the accompanying prospectus and the documents incorporated herein and therein by reference speak only as of the date on which such statement was made, and we do not undertake any obligation to update any forward-looking statements, whether as a result of future events, new information, or otherwise.

S-13

TABLE OF CONTENTS

USE OF PROCEEDS

We estimate that the net proceeds from the sale of the shares of common stock that we are offering will be approximately \$7,362,900, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

We intend to use the net proceeds from the sale of the securities offered hereby for operating costs, capital expenditures and for general corporate purposes, including working capital. We may also use a portion of the net proceeds to invest in or acquire businesses or technologies that we believe are complementary to our own, although we have no current plans, commitments or agreements with respect to any acquisitions as of the date of this prospectus supplement. Pending these uses, we intend to invest the net proceeds in investment-grade, interest-bearing securities.

As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses of the proceeds from the offering.

S-14

TABLE OF CONTENTSDILUTION

Our net tangible book value at September 30, 2014 was approximately \$4,020,580, or \$0.147 per share of common stock, assuming all shares of preferred stock have been converted to common stock. Net tangible book value per share is determined by dividing the net tangible book value, total tangible assets less total liabilities, by the number of outstanding shares of common stock, assuming all shares of preferred stock have been converted to common stock, at that date. After taking into account the sale by us of 6,200,000 shares of our common stock in this offering at \$1.30 per share, assuming all shares of preferred stock have been converted to shares of common stock and after deducting underwriting discounts and commissions and our estimated offering expenses, the as adjusted net tangible book value at September 30, 2014 would have been approximately \$11.4 million, or \$0.339 per share. Assuming the completion of this offering, there will be an immediate increase in net tangible book value to existing stockholders of \$0.192 per share and an immediate dilution to new investors of \$0.961 per share. The following table illustrates the per share dilution to new investors:

Offering price per share		\$ 1.30
Net tangible book value per share of common stock, as of September 30, 2014, assuming all shares of preferred stock have been converted to common stock	\$ 0.147	
As adjusted increase in net tangible book value per share of common stock, assuming all shares of preferred stock have been converted to common stock, attributable to new investors	\$ 0.192	
As adjusted net tangible book value per share of common stock, after offering, assuming all shares of preferred stock have been converted to common stock	\$ 0.339	
Dilution per share to new investors in the offering		\$ 0.961

S-15

TABLE OF CONTENTS

Price range of common stock

Our common stock is listed for trading on The Nasdaq Capital Market under the symbol "CASM." On February 10, 2015, the last reported sale price for our common stock on The Nasdaq Capital Market was \$1.35 per share. On January 30, 2015, there were approximately 173 record holders of our common stock.

Prior to March 18, 2014, our common stock was traded on The Nasdaq Global Market, under the symbol "CASM". Our common stock began trading under its same ticker — CASM — on The Nasdaq Capital Market effective at the opening of trading on March 18, 2014. The following table sets forth, for the periods indicated, the high and low sales prices per share of our common stock as reported on The Nasdaq Global Market or The Nasdaq Capital Market, as applicable.

	High	Low
Fiscal Year 2015		
First Quarter (through February 10, 2015)	\$ 1.92	\$ 1.25
Fiscal Year 2014		
Fourth Quarter	\$ 1.98	\$ 1.50
Third Quarter	\$ 2.06	\$ 1.37
Second Quarter	\$ 2.33	\$ 1.80
First Quarter	\$ 2.50	\$ 1.65
Fiscal Year 2013		
Fourth Quarter	\$ 2.00	\$ 1.21
Third Quarter	\$ 1.65	\$ 1.29
Second Quarter	\$ 2.37	\$ 1.58
First Quarter	\$ 2.38	\$ 1.79
Fiscal Year 2012		
Fourth Quarter	\$ 2.29	\$ 1.66
Third Quarter	\$ 2.25	\$ 1.65
Second Quarter	\$ 2.75	\$ 1.60
First Quarter	\$ 2.98	\$ 1.62

S-16

TABLE OF CONTENTS

Underwriting

The underwriter for the offering named below has agreed to purchase, subject to the terms of an underwriting agreement dated the date of this prospectus supplement, the number of shares of common stock listed opposite its name below. The underwriting agreement provides that the obligations of the underwriter are subject to certain customary conditions precedent, representations and warranties contained therein. Pursuant to the underwriting agreement, the underwriter has agreed to purchase all of the shares sold under the underwriting agreement if any of these shares are purchased, other than those shares covered by the overallotment option described below.

Underwriter	Number of Shares
Craig-Hallum Capital Group LLC	6,200,000

The underwriter proposes to offer the shares of common stock to the public at the public offering price set forth on the cover page of this prospectus supplement. If all of the shares are not sold at the public offering price, the underwriter may change the offering price and other selling terms and we will file a supplement to this prospectus to reflect such modified terms.

The underwriter is offering the shares, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of legal matters by its counsel and other conditions specified in the underwriting agreement. The underwriter reserves the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

We have granted to the underwriter an option to purchase up to 930,000 additional shares of common stock at the public offering price, less the underwriting discount. The option is exercisable for 30 days. The underwriter may exercise this option solely for the purpose of covering overallotments, if any, made in connection with the sale of common stock offered hereby.

The following table shows the public offering price, underwriting discount and proceeds, before expenses, to us. These amounts are shown assuming both no exercise and full exercise of the underwriter's option to purchase additional shares.

	Per Share	Total	
		Without Overallotment	With Overallotment
Public offering price	\$ 1.30	\$ 8,060,000	\$ 9,269,000
Underwriting discount	\$ 0.078	\$ 483,600	\$ 556,140
Proceeds, before expenses, to us	\$ 1.222	\$ 7,576,400	\$ 8,712,860

We estimate expenses payable by us in connection with this offering, other than the underwriting discounts referred to above, will be approximately \$213,500. This estimate includes up to \$95,000 of out-of-pocket fees and expenses of the underwriter.

We have agreed to indemnify the underwriter against certain liabilities, including civil liabilities under the Securities Act of 1933, as amended (the "Securities Act"), or to contribute to payments that the underwriter may be required to make in respect of those liabilities.

We and each of our directors and executive officers and the holders of our preferred stock have entered into lock-up agreements that prevent them from selling any shares of our common stock or any securities convertible into or exercisable or exchangeable into share of common stock, subject to certain exceptions, for a period of 90 days after the date of this prospectus supplement. The underwriter, in its sole discretion, may release the common stock and other securities subject to the lock-up agreements described above in whole or in part at any time. When determining whether or not to release the common stock and other securities from lock-up agreements, the underwriter will consider, among other factors, the holder's reasons for requesting the release and the number of shares of common stock or other securities for which the release is being requested. The 90 day lock-up period is subject to extension such that, in the event that either (i) during the last 17 days of the "lock-up" period, we issue an earnings or financial results release or material news or a material event relating to us occurs, or (ii) prior to the expiration of the "lock-up" S-17

TABLE OF CONTENTS

period, we announce that we will release earnings or financial results during the 16-day period beginning on the last day of the “lock-up” period, then in either case the expiration of the “lock-up” period will be automatically extended until the expiration of the 18-day period beginning on the issuance of the earnings or financial results release or the occurrence of the material news or material event, as applicable, unless the underwriter waives, in writing, such an extension.

From time to time in the ordinary course of business, the underwriter and certain of the underwriter’s affiliates have engaged, and may in the future engage, in investment banking transactions with us or our affiliates.

In connection with this offering, the underwriter may engage in stabilizing transactions, overallotment transactions, syndicate covering transactions, penalty bids and purchases to cover positions created by short sales.

- Stabilizing transactions permit bids to purchase shares of common stock so long as the stabilizing bids do not exceed a specified maximum, and are engaged in for the purpose of preventing or retarding a decline in the market price of the common stock while the offering is in progress.

- Overallotment transactions involve sales by the underwriter of shares of common stock in excess of the number of shares the underwriter is obligated to purchase. This creates a syndicate short position which may be either a covered short position or a naked short position. In a covered short position, the number of shares over-allotted by the underwriter is not greater than the number of shares that it may purchase in the overallotment option. In a naked short position, the number of shares involved is greater than the number of shares in the overallotment option. The underwriter may close out any short position by exercising its overallotment option and/or purchasing shares in the open market.

- Syndicate covering transactions involve purchases of common stock in the open market after the distribution has been completed in order to cover syndicate short positions. In determining the source of shares to close out the short position, the underwriter will consider, among other things, the price of shares available for purchase in the open market as compared with the price at which they may purchase shares through exercise of the overallotment option. If the underwriter sells more shares than could be covered by exercise of the overallotment option and, therefore, has a naked short position, the position can be closed out only by buying shares in the open market. A naked short position is more likely to be created if the underwriter is concerned that after pricing there could be downward pressure on the price of the shares in the open market that could adversely affect investors who purchase in the offering.

These stabilizing transactions, syndicate covering transactions and penalty bids may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock in the open market may be higher than it would otherwise be in the absence of these transactions. Neither we nor the underwriter make any representation or prediction as to the effect that the transactions described above may have on the price of our common stock. These transactions may be effected on The Nasdaq Capital Market, in the over-the-counter market or otherwise and, if commenced, may be discontinued at any time.

A prospectus in electronic format may be made available on the websites maintained by the underwriter, if any, participating in this offering and the underwriter may distribute prospectuses electronically. Other than the prospectus in electronic format, the information on these websites is not part of this prospectus supplement, the accompanying prospectus or the registration statement of which this prospectus supplement and the accompanying prospectus form a part, has not been approved or endorsed by us or the underwriter, and should not be relied upon by investors.

TABLE OF CONTENTS

Legal matters

Certain legal matters with respect to the common stock offered by this prospectus supplement will be passed upon for us by Wiggin and Dana LLP, Stamford, Connecticut. The underwriter has been represented in connection with this offering by Ellenoff Grossman & Schole LLP, New York, New York.

Experts

The consolidated financial statements incorporated in this prospectus supplement by reference to the CAS Medical Systems, Inc. Annual Report on Form 10-K for the year ended December 31, 2013 have been so incorporated in reliance on the report of CohnReznick LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

Where you can find more information

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the securities we are offering under this prospectus supplement. This prospectus supplement does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus supplement, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. You may read and copy the registration statement, as well as our reports, proxy statements and other information, at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. You can request copies of these documents by writing to the SEC and paying a fee for the copying cost. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the Public Reference Room. The SEC maintains an internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, where our SEC filings are also available. The address of the SEC's web site is "http://www.sec.gov." We maintain a website at <http://www.casmed.com>. Information contained in or accessible through our website does not constitute a part of this prospectus supplement.

Incorporation by Reference

The SEC allows us to "incorporate by reference" the information we file with the SEC. This means that we can disclose important information to you by referring you to another filed document. Any information referred to in this way is considered part of this prospectus supplement from the date we file that document. Any reports filed by us with the SEC after the date of this prospectus supplement and before the date that the offering of the securities by means of this prospectus supplement is completed will automatically update and, where applicable, supersede any information contained in this prospectus supplement or accompanying prospectus or incorporated by reference into this prospectus supplement. Accordingly, we incorporate by reference the following documents or information filed with the SEC:

(a)

Current Reports on Form 8-K filed March 17, 2014, June 27, 2014, June 30, 2014, July 2, 2014, October 9, 2014, January 8, 2015 (as amended by Form 8-K/A filed January 8, 2015) and February 11, 2015 (Item 1.01 and exhibits referenced therein);

(b)

Quarterly Reports on Form 10-Q for the quarters ended March 31, 2014, June 30, 2014 and September 30, 2014, filed May 2, 2014, August 6, 2014 and November 4, 2014, respectively;

(c)

Annual Report on Form 10-K for the year ended December 31, 2013 filed March 19, 2014;

(d)

Proxy Statement filed April 29, 2014;

(e)

The description of our capital stock set forth in the Registration Statement on Form S-18, filed on March 7, 1985; and

(f)

All documents filed by us in accordance with Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 on or after the date of this prospectus supplement and before the completion of the offering under this prospectus supplement, other than documents or information deemed furnished and not filed in accordance with SEC rules.

S-19

TABLE OF CONTENTS

We will provide to each person, including any beneficial owner, to whom a copy of this prospectus supplement has been delivered, without charge, upon the written or oral request of such person, a copy of any or all of the documents which are incorporated by reference into this prospectus supplement, other than exhibits to those documents, unless those exhibits are specifically incorporated by reference into the information that this prospectus supplement incorporates. Requests should be directed to: CAS Medical Systems, Inc., Attention: Corporate Secretary, 44 East Industrial Road, Branford, CT 06405, telephone: (203) 488-6056.

S-20

TABLE OF CONTENTS

PROSPECTUS

CAS MEDICAL SYSTEMS, INC.

\$20,000,000

COMMON STOCK

PREFERRED STOCK

WARRANTS

UNITS

We may offer from time to time any combination of the securities described in this prospectus, either individually or in units.

This prospectus provides a general description of the securities we may offer. Each time we sell securities, we will provide specific terms of the securities offered in a supplement to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectus may also add, update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as any documents incorporated by reference before you invest in any securities. This prospectus may not be used to consummate a sale of securities unless accompanied by the applicable prospectus supplement.

Our common stock is listed on The Nasdaq Global Market under the symbol "CASM." On May 23, 2013, the last reported sale price for our common stock was \$1.83 per share. The applicable prospectus supplement will contain information, where applicable, as to any other listing on The Nasdaq Global Market or any securities market or other exchange of the securities, if any, covered by the prospectus supplement.

As of May 23, 2013, the aggregate market value of our common stock held by non-affiliates was approximately \$18,857,615 based on 13,697,955 shares of outstanding common stock, of which 3,393,247 shares are held by affiliates, and a price of \$1.83 per share, which was the last reported sale price of our common stock as quoted on The Nasdaq Global Market on that date. We have not offered any securities pursuant to General Instruction I.B.6 of Form S-3 during the prior 12 month calendar period that ends on, and includes, the date of this prospectus.

INVESTING IN OUR SECURITIES INVOLVES RISKS. YOU SHOULD REVIEW CAREFULLY THE RISKS AND UNCERTAINTIES DESCRIBED UNDER THE HEADING "RISK FACTORS" ON PAGE 4 AND CONTAINED IN THE APPLICABLE PROSPECTUS SUPPLEMENT AND ANY RELATED FREE WRITING PROSPECTUS AND UNDER SIMILAR HEADINGS IN THE OTHER DOCUMENTS THAT ARE INCORPORATED BY REFERENCE INTO THIS PROSPECTUS.

We may sell these securities directly to investors, through agents designated from time to time or to or through underwriters or dealers. For additional information on the methods of sale, you should refer to the section entitled "Plan of Distribution" in this prospectus. If any underwriters are involved in the sale of any securities with respect to which this prospectus is being delivered, the names of such underwriters and any applicable commissions or discounts will be set forth in a prospectus supplement. The price to the public of such securities and the net proceeds we expect to receive from such sale will also be set forth in a prospectus supplement.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR DETERMINED IF THIS PROSPECTUS IS TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The date of this prospectus is May 24, 2013

TABLE OF CONTENTS

TABLE OF CONTENTS

	Page
<u>About this Prospectus</u>	<u>1</u>
<u>Summary</u>	<u>2</u>
<u>Risk Factors</u>	<u>4</u>
<u>Use of Proceeds</u>	<u>5</u>
<u>Description of Common Stock and Preferred Stock</u>	<u>6</u>
<u>Description of Warrants</u>	<u>11</u>
<u>Description of Units</u>	<u>13</u>
<u>Legal Ownership of Securities</u>	<u>14</u>
<u>Plan of Distribution</u>	<u>17</u>
<u>Legal Matters</u>	<u>19</u>
<u>Experts</u>	<u>19</u>
<u>Where You Can Find More Information</u>	<u>19</u>
<u>Incorporation by Reference</u>	<u>19</u>
(i)	

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS

This prospectus is a part of a registration statement that we filed with the Securities and Exchange Commission (“SEC”) utilizing a “shelf” registration process. Under this shelf process, we may sell the securities described in this prospectus in one or more offerings. This prospectus provides you with a general description of the securities we may offer. Each time we sell securities under this shelf registration, we will provide a prospectus supplement that will contain specific information about the terms of that offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. The prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in any documents that we have incorporated by reference into this prospectus. You should read this prospectus, any applicable prospectus supplement and any related free writing prospectus, together with the information incorporated herein by reference as described under the heading “Where You Can Find More Information.”

You should rely only on the information that we have provided or incorporated by reference in this prospectus, any applicable prospectus supplement and any related free writing prospectus that we may authorize to be provided to you. We have not authorized any dealer, salesman or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus, any applicable prospectus supplement or any related free writing prospectus that we may authorize to be provided to you. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or the accompanying prospectus supplement. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you.

This prospectus and the accompanying supplement to this prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus and the accompanying supplement to this prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus, any applicable prospectus supplement or any related free writing prospectus is delivered or securities sold on a later date.

TABLE OF CONTENTS

SUMMARY

Prospectus Summary

This summary highlights selected information from this prospectus and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, including the risks of investing discussed under “Risk Factors” beginning on page 4, the information incorporated by reference, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part. Throughout this prospectus, (i) references to “CAS,” “CASMED,” the “Company,” “we,” “us” and “our” refer to CAS Medical Systems, Inc., a Delaware corporation, unless the context otherwise requires; (ii) references to “common stock” refer to the Company’s common stock, par value \$0.004 per share; and (iii) references to “preferred stock” refer to the Company’s preferred stock, par value of \$0.001 per share.

The Company

We are a medical technology company that develops, manufactures and markets non-invasive patient monitoring products that are vital to patient care. Our products include the FORE-SIGHT® Absolute Tissue Oximeter and sensors, and our Traditional Monitoring products which include MAXNIBP® blood pressure measurement technology, bedside monitoring products, and neonatal vital signs supplies. These products are designed to provide accurate, non-invasive, biologic measurements that guide clinicians to provide better patient care.

We believe that our FORE-SIGHT Absolute Tissue Oximeter places CASMED in a unique position to expand the clinical application for monitoring tissue oxygenation. Standard non-invasive parameters such as pulse oximetry and blood pressure only provide surrogate markers of tissue oxygen delivery. The indirect nature of these parameters forces clinicians to infer the adequacy of oxygenation in vital organs. However, data convincingly show that clinician estimation of cerebral oxygenation during medical procedures often does not correlate with actual tissue oxygenation levels and that potentially dangerous cerebral hypoxia often goes unrecognized. Therefore, direct monitoring of cerebral oxygenation provides a unique and powerful tool that allows clinicians to recognize and treat potentially dangerous tissue hypoxia to avoid adverse clinical outcomes.

We report two categories of revenue within one reportable business unit.

- Tissue Oximetry Monitoring — includes sales of our FORE-SIGHT Absolute Tissue Oximeter monitors, sensors and accessories; and

- Traditional Monitoring — includes sales of our traditional vital signs products and services including: (i) sales to Original Equipment Manufacturers (“OEM”) of our proprietary non-invasive blood pressure technology (MAXNIBP®) for inclusion in the OEM customer’s own multi-parameter monitors; (ii) bedside vital signs monitors and accessories incorporating various combinations of measurement parameters for both human and veterinary use such as MAXNIBP non-invasive blood pressure, pulse oximetry, electrocardiography (ECG), temperature, and capnography (CO2 measurements); (iii) neonatal intensive care vital signs supplies including electrodes and skin temperature probes; and (iv) service repair.

Our principal executive offices are located at 44 East Industrial Road, Branford, CT 06405, and our telephone number is (203) 488-6056. We maintain a website at www.casmed.com where general information about us is available. We are not incorporating the contents of the website into this prospectus.

The Securities We May Offer

We may offer shares of our common stock, shares of our preferred stock and warrants to purchase shares of our common stock, either individually or in units, from time to time under this prospectus, together with any applicable prospectus supplement and related free writing prospectus, at prices and on terms to be determined by market conditions at the time of offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities. A prospectus supplement and any related free writing prospectus that we may authorize to

TABLE OF CONTENTS

be provided to you may also add, update or change information contained in this prospectus or in documents we have incorporated by reference. However, no prospectus supplement or free writing prospectus will offer a security that is not registered and described in this prospectus at the time of the effectiveness of the registration statement of which this prospectus is a part.

We may sell the securities directly to or through underwriters, dealers or agents. We, and our underwriters or agents, reserve the right to accept or reject all or part of any proposed purchase of securities. If we do offer securities through underwriters or agents, we will include in the applicable prospectus supplement:

- the names of those underwriters or agents;
- applicable fees, discounts and commissions to be paid to them;
- details regarding over-allotment options, if any; and
- the net proceeds to us.

Common Stock. We may offer shares of our common stock from time to time. Holders of our common stock are entitled to one vote per share on all matters that require stockholder approval. Subject to any preferential rights of any outstanding preferred stock, holders of our common stock are entitled to dividends when and if declared by the board of directors. Our common stock is described in greater detail in this prospectus under “Description of Common Stock and Preferred Stock — Common Stock.”

Preferred Stock. We may offer shares of our preferred stock in one or more classes or series from time to time at the discretion of our board of directors. Our board of directors shall determine the voting powers, designations, preferences, dividend rights, conversion rights and other special rights and qualifications of any such class or series of preferred stock. Our preferred stock is described in greater detail in this prospectus under “Description of Common Stock and Preferred Stock — Preferred Stock.”

Warrants. We may offer warrants for the purchase of our common stock in one or more series, from time to time. We may issue warrants independently or together with common stock and the warrants may be attached to or separate from the shares of common stock.

The warrants may be evidenced by warrant certificates issued under one or more warrant agreements, which are contracts between us and an agent, if any, for the holders of the warrants. In this prospectus, we have summarized certain general features of the warrants under “Description of Warrants.” We urge you, however, to read the prospectus supplements and any free writing prospectus that we may authorize to be provided to you related to the series of warrants being offered, as well as the complete warrant agreements or warrant certificates that contain the terms of the warrants. Specific warrant agreements will contain additional important terms and provisions and will be incorporated by reference as an exhibit to the registration statement which includes this prospectus.

Units. We may offer units consisting of common stock and warrants to purchase shares of our common stock in one or more series. In this prospectus, we have summarized certain general features of the units under “Description of Units.” We urge you, however, to read the prospectus supplements and any free writing prospectus that we may authorize to be provided to you related to the series of units being offered, as well as any unit agreements that contain the terms of the units. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from a current report on Form 8-K that we file with the SEC, any form of unit agreement and any supplemental agreements that describe the terms of the series of units we are offering before the issuance of the related series of units.

We may evidence each series of units by unit certificates that we will issue under a separate agreement. We will enter into the unit agreements with a unit agent, if any. Any unit agent will be a bank or trust company that we select. We will indicate the name and address of the unit agent, if any, in the applicable prospectus supplement relating to a

particular series of units.

THIS PROSPECTUS MAY NOT BE USED TO OFFER OR SELL ANY SECURITIES UNLESS ACCOMPANIED BY A PROSPECTUS SUPPLEMENT.

3

TABLE OF CONTENTS

RISK FACTORS

Investing in our securities involves risks. You should carefully consider the risks described under “Risk Factors” beginning on page 14 of our annual report on Form 10-K for the year ended December 31, 2012, which is incorporated by reference herein, as well as the other information contained or incorporated by reference in this prospectus or any prospectus supplement hereto before making a decision to invest in our securities.

4

TABLE OF CONTENTS

USE OF PROCEEDS

Except as described in any applicable prospectus supplement and in any free writing prospectuses in connection with a specific offering, we currently intend to use the net proceeds from the sale of the securities offered hereby for operating costs, capital expenditures and for general corporate purposes, including working capital. We may also use a portion of the net proceeds to invest in or acquire businesses or technologies that we believe are complementary to our own, although we have no current plans, commitments or agreements with respect to any acquisitions as of the date of this prospectus. Pending these uses, we intend to invest the net proceeds in investment-grade, interest-bearing securities.

5

TABLE OF CONTENTS

DESCRIPTION OF COMMON STOCK AND PREFERRED STOCK

As of the date of this prospectus, our Restated Certificate of Incorporation authorizes us to issue up to (i) 40,000,000 shares of common stock, par value \$0.004 per share and (ii) 1,000,000 shares of preferred stock, par value of \$0.001 per share. As of May 23, 2013, there were 13,697,955 shares of our common stock issued and outstanding, which shares were held by 205 stockholders of record, and 150,000 shares of preferred stock outstanding, of which 95,500 shares are designated as Series A Convertible Preferred Stock and 54,500 shares are designated as Series A Exchangeable Preferred Stock.

The following summary describes the material terms of our capital stock. The description of our capital stock is qualified by reference to our Restated Certificate of Incorporation and our Amended and Restated Bylaws, which are incorporated by reference as exhibits into the registration statement of which this prospectus is a part.

Common Stock

All outstanding shares of our common stock, par value \$0.004 per share, are fully paid and nonassessable. Holders of our common stock are entitled to one vote for each share on all matters submitted to a stockholder vote, except matters that relate only to a series of our preferred stock. In general, stockholder action is based on the affirmative vote of holders of a majority of the shares of common stock represented either in person or by proxy and entitled to vote on such action. Directors are elected by plurality vote.

Subject to limitations under Delaware law and preferences that may apply to any then-outstanding shares of preferred stock, holders of common stock are entitled to share ratably in dividends, if any, as may be declared from time to time by the Board of Directors in its discretion from funds legally available therefor. Dividends, if any, will be contingent upon our revenues and earnings, if any, and capital requirements and financial conditions. To date, no cash dividends have been declared on our common stock. We do not currently intend to pay a cash dividend on our common stock in the near future. Furthermore, we are currently precluded from issuing dividends on our common stock unless we receive the consent of holders of a majority of our outstanding Series A Convertible Preferred Stock and Series A Exchangeable Preferred Stock.

In the event of a liquidation, dissolution or winding up, the holders of our common stock are entitled to share pro rata all assets remaining after payment in full of all liabilities and after providing for each class of stock, if any, having preference over the common stock, subject to the liquidation preference of any then outstanding shares of preferred stock.

Holders of our common stock have no pre-emptive rights, no conversion rights and there are no redemption provisions applicable to our common stock.

Preferred Stock

Our Restated Certificate of Incorporation authorizes us to issue up to 1,000,000 shares of preferred stock, \$0.001 par value per share.

When we offer to sell a particular class or series of preferred stock, we will describe the specific terms of the securities in a supplement to this prospectus. The preferred stock will be issued under a certificate of designations relating to each class or series of preferred stock and is also subject to our Restated Certificate of Incorporation.

There are currently 150,000 shares of preferred stock outstanding, of which 95,500 shares are designated as Series A Convertible Preferred Stock and 54,500 shares are designated as Series A Exchangeable Preferred Stock. The issuance of additional series of preferred stock could make it more difficult or prevent a change of control of our company or the removal of our management. Additionally, the issuance of additional series of preferred stock may have the effect of decreasing the market price of our common stock. The rights of holders of our common stock described above are subject to, and may be adversely affected by, the rights of any preferred stock that our board of directors has or may designate and issue in the future.

TABLE OF CONTENTS

Series A Convertible Preferred Stock

The shares of Series A Convertible Preferred Stock are convertible at the option of the holders into common stock at a conversion price of \$2.82 (the “Conversion Price”). The Conversion Price is subject to weighted average anti-dilution adjustments subject to limitations under the listing rules of The Nasdaq Global Market. The stated value of the Series A Convertible Preferred Stock (\$100.00 per share) accretes at an annual rate of 7%, compounded quarterly and prior to the third anniversary of the original date of issuance, the holders may elect, pursuant to certain requirements, to receive the accretion in the form of a dividend of 7% per annum, payable quarterly in cash at the holder’s option through the third anniversary of the original date of issuance and thereafter such determination is at our option. Upon our failure to pay when due any amounts owed on the shares of Series A Convertible Preferred Stock, the failure of a Purchaser designee to be nominated to our Board of Directors or such other trigger events as described in the Certificate of Designation of the Series A Preferred Stock, the dividend rate shall be increased by an additional five percent (5%) per annum.

After the third anniversary of the original date of issuance, we can force conversion (“Mandatory Conversion”) of all, and not less than all, of the outstanding Series A Preferred Stock into common stock as long as the closing price of our common stock is at least 250% of the Conversion Price for at least 20 of the 30 consecutive trading days immediately prior to the conversion and the average daily trading volume is greater than 50,000 shares per day over the 30 consecutive trading days immediately prior to such conversion. Our ability to cause a Mandatory Conversion is subject to certain other conditions as provided in the Certificate of Designation for the Series A Convertible Preferred Stock.

The Series A Convertible Preferred Stock is entitled to a liquidation preference equal to the greater of 100% of the accreted value for each share of Series A Convertible Preferred Stock outstanding on the date of a liquidation plus all accrued and unpaid dividends or the amount a holder would have been entitled to had the holder converted the shares of Series A Convertible Preferred Stock into common stock immediately prior to the liquidation. The Series A Convertible Preferred Stock votes together with the common stock as-if-converted on the original date of issuance. Holders of Series A Convertible Preferred Stock are entitled to purchase their pro rata share of additional stock issuances in certain future financings.

In addition, if at any time when at least fifty percent (50%) of the aggregate number of shares of Series A Convertible Preferred Stock issued are outstanding, in addition to any other vote or consent of the stockholders required by law or by the Restated Certificate of Incorporation, including any Certificate of Designation, or our Amended and Restated Bylaws, we will not, without the prior written consent of the holders of a majority of the Series A Convertible Preferred Stock: (i) amend, alter, waive or repeal any provision of our certificate of incorporation, including any certificate of designation, or bylaws in any manner that would adversely affect the rights, powers, preferences or privileges (economic or otherwise) of the Series A Convertible Preferred Stock or Series A Exchangeable Preferred Stock, increase the authorized number of shares of the Series A Convertible Preferred Stock or Series A Exchangeable Preferred Stock, or split, reverse split, subdivide, reclassify, combine or take other corporate actions having a similar effect with respect to the Series A Convertible Preferred Stock or Series A Exchangeable Preferred Stock; (ii) issue any additional shares of Series A Convertible Preferred Stock or Series A Exchangeable Preferred Stock; (iii) offer, sell or issue any equity or equity-linked securities senior to or on parity with the Series A Convertible Preferred Stock; (iv) increase or decrease the size of our board of directors; (v) incur indebtedness (other than indebtedness that, when aggregated with all other indebtedness incurred since June 9, 2011 and then outstanding, is less than \$4,000,000 when so aggregated); (vi) redeem, repurchase or otherwise acquire or offer to redeem, repurchase, or otherwise acquire any equity or equity-linked securities senior to or on parity with the Series A Convertible Preferred Stock, other pursuant to certain employee or director incentive or benefit plans; (vii) distribute assets to our stockholders; (viii) enter into any transaction with any of our officers, directors or affiliates, other than (A) employment arrangements entered into in the ordinary course of business consistent with past practices providing for annual base compensation and benefits not exceeding \$200,000 in the aggregate, unless unanimously approved by the Compensation Committee of the Board of Directors and (B) grants pursuant to equity incentive plans approved by our stockholders; (ix) adopt or amend any stockholder rights plan, poison pill or similar anti-takeover device; (x) sell, lease, license or otherwise dispose of any assets outside the ordinary course of business consistent with past practices, except for assets with a purchase price, in the aggregate, of less than

TABLE OF CONTENTS

\$500,000; (xi) enter into any contract, agreement or other arrangement that would preclude us from making payment in full in cash on of the dividends on the Series A Convertible Preferred Stock; or (xii) authorize, commit or agree (in writing or otherwise) to do any of the foregoing.

Series A Exchangeable Preferred Stock

Prior to approval by the stockholders of the Company at the Special Meeting of Stockholders on August 22, 2011, holders of the Series A Exchangeable Preferred Stock did not have any voting rights and the stated value of the Series A Exchangeable Preferred Stock of \$100.00 per share accreted at an annual rate of 10%, compounded quarterly.

Following approval by the stockholders of the Company, the Series A Exchangeable Preferred Stock now has substantially identical terms to the Series A Convertible Preferred Stock described immediately above.

Pursuant to the terms of the Series A Convertible Preferred Stock and Series A Exchangeable Preferred Stock, a holder must issue a written request to the Company by June 15th of 2011, 2012, or 2013 to receive cash dividends for the applicable succeeding four fiscal quarters ending June 30th, September 30th, December 31st, and March 31st. The holders have elected in writing not to receive cash dividends for the fiscal quarters through June 30, 2013. Further, the holders have irrevocably waived their cash dividend rights for the four fiscal quarters ending June 30, 2014, in accordance with the Company's agreement with East West Bank executed on July 31, 2012, which prohibits the payment of cash dividends. The holders' waiver of their cash dividend rights for the four fiscal quarters ending June 30, 2014, may be revoked if the Company's obligations to East West Bank are terminated at any time prior to June 30, 2014. As of March 31, 2013, \$2,047,583 in dividend accretion has accumulated on the Series A Convertible Preferred Stock and the Series A Exchangeable Preferred Stock.

Delaware Anti-Takeover Law and Provisions of Our Certificate of Incorporation and Our Amended and Restated Bylaws

Delaware Anti-Takeover Law. We are subject to Section 203 of the Delaware General Corporation Law (the "DGCL"). Section 203 generally prohibits a public Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the interested stockholder attained such status with the approval of our board of directors, the business combination is approved in a prescribed manner or the interested stockholder acquired at least 85% of our outstanding voting stock in the transaction in which it became an interested stockholder. A "business combination" includes, among other things, a merger or consolidation involving us and the "interested stockholder" and the sale of more than 10% of our assets. In general, an "interested stockholder" is any entity or person beneficially owning 15% or more of our outstanding voting stock and any entity or person affiliated with or controlling or controlled by such entity or person.

Restated Certificate of Incorporation and Amended and Restated Bylaws. Provisions of our restated certificate of incorporation and our amended and restated bylaws may delay or discourage transactions involving an actual or potential change of control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares, or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our restated certificate of incorporation and our bylaws:

- Authorize the issuance of "blank check" preferred stock, the terms of which may be established and shares of which may be issued without stockholder approval (Article 4(b) of our restated certificate of incorporation);
- Limit the ability of stockholders to call a special meeting of stockholders to only those stockholders holding at least a majority of the outstanding shares of the Company entitled to vote at such a meeting (Article II, Section 2.04 of our amended and restated bylaws);
- Provide that a director may be removed from office only at a special meeting duly called and held for such purpose and by the affirmative vote of the majority holders of our then outstanding common stock entitled to vote at an election of directors (Article III, Section 3.03 of our amended and restated bylaws); and

TABLE OF CONTENTS

- Provide that vacancies in the board of directors shall be filled by the affirmative vote of a majority of the remaining directors then in office and not by stockholders (Article III, Section 3.03 of our amended and restated bylaws).

Limitation on Liability and Indemnification Matters

Section 102(b)(7) of the DGCL provides that a Delaware corporation, in its certificate of incorporation, may limit the personal liability of a director to the corporation or its stockholders for monetary damages for breach of fiduciary duties as a director, except for liability for any:

- Breach of the director's duty of loyalty to the corporation or its stockholders;

- Act or omission not in good faith or that involved intentional misconduct or a knowing violation of law;

- Unlawful payment of dividends or redemption of shares; or

- Transaction from which the director derived an improper personal benefit.

Section 145(a) of the DGCL provides, in general, that a Delaware corporation may indemnify any person who was or is a party, or is threatened to be made a party, to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) because that person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation or other enterprise. The indemnity may include expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, so long as the person acted in good faith and in a manner he or she reasonably believed was in or not opposed to the corporation's best interests, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful.

Section 145(b) of the DGCL provides, in general, that a Delaware corporation may indemnify any person who was or is a party, or is threatened to be made a party, to any threatened, pending or completed action or suit by or in the right of the corporation to obtain a judgment in its favor because the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation or other enterprise. The indemnity may include expenses (including attorneys' fees) actually and reasonably incurred by the person in connection with the defense or settlement of such action, so long as the person acted in good faith and in a manner the person reasonably believed was in or not opposed to the corporation's best interests, except that no indemnification shall be permitted without judicial approval if a court has determined that the person is to be liable to the corporation with respect to such claim. If a present or former director or officer has been successful in defense of any action referred to above, the corporation must indemnify such officer or director against the expenses (including attorneys' fees) he or she actually and reasonably incurred in connection with such action.

Section 145(g) of the DGCL provides, in general, that a corporation may purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation or other enterprise against any liability asserted against and incurred by such person, in any such capacity, or arising out of his or her status as such, whether or not the corporation could indemnify the person against such liability under Section 145 of the DGCL.

Our Restated Certificate of Incorporation limits the liability of our directors to the fullest extent permitted under the DGCL. Our Amended and Restated Bylaws and Restated Certificate of Incorporation provide for the indemnification of our directors, officers, employees and agents to the fullest extent permitted under the DGCL.

We maintain standard policies of insurance under which coverage is provided to our directors and officers against losses arising from claims made by reason of a breach of duty or other wrongful act. We are also a party to indemnification agreements with each of the members of our board of directors, dated June 9, 2011, which provide the directors with contractual protection against personal liability.

9

TABLE OF CONTENTS

The foregoing summaries are qualified in their entirety by reference to the complete text of the DGCL and our Restated Certificate of Incorporation and our Amended and Restated Bylaws, which are exhibits to this registration statement.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer and Trust Company, LLC.

Stock Exchange Listing

Our common stock is listed on The Nasdaq Global Market under the symbol "CASM."

10

TABLE OF CONTENTS

DESCRIPTION OF WARRANTS

The following description, together with the additional information we may include in any applicable prospectus supplements and free writing prospectuses, summarizes the material terms and provisions of the warrants that we may offer under this prospectus, which may be issued in one or more series. Warrants may be offered independently or together with common stock offered by any prospectus supplement, and may be attached to or separate from the shares of common stock. While the terms we have summarized below will apply generally to any warrants that we may offer under this prospectus, we will describe the particular terms of any series of warrants that we may offer in more detail in the applicable prospectus supplement and any applicable free writing prospectus. The terms of any warrants offered under a prospectus supplement may differ from the terms described below. However, no prospectus supplement will fundamentally change the terms that are set forth in this prospectus or offer a security that is not registered and described in this prospectus at the time of its effectiveness.

We may issue the warrants under a warrant agreement with a warrant agent to be selected by us. The warrant agent, if any, will act solely as an agent of ours in connection with the warrants and will not act as an agent for the holders or beneficial owners of the warrants. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from a current report on Form 8-K that we file with the SEC, the form of warrant agreement, including a form of warrant certificate, as applicable, that describes the terms of the particular series of warrants we are offering before the issuance of the related series of warrants. The following summaries of material provisions of the warrants and the warrant agreements, as applicable, are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and warrant certificate applicable to a particular series of warrants. We urge you to read the applicable prospectus supplement and any applicable free writing prospectus related to the particular series of warrants that we sell under this prospectus, as well as the complete warrant agreements and warrant certificates, as applicable, that contain the terms of the warrants.

General

We will describe in the applicable prospectus supplement the terms relating to a series of warrants, including:

- the offering price and aggregate number of warrants offered;
- the currency for which the warrants may be purchased;
- if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;
- if applicable, the date on and after which the warrants and the related securities will be separately transferable;
- the number of shares of common stock purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;
- the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreements and the warrants;
- the terms of any rights to redeem or call the warrants;
-

any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;

- the dates on which the right to exercise the warrants will commence and expire;
- the manner in which the warrant agreements and warrants may be modified;
- United States federal income tax consequences of holding or exercising the warrants;
- the terms of the securities issuable upon exercise of the warrants; and
- any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

TABLE OF CONTENTS

Before exercising their warrants, holders of warrants will not have any of the rights of holders of the shares of common stock purchasable upon such exercise, including the right to receive dividends, if any, or, payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any.

Exercise of Warrants

Each warrant will entitle the holder to purchase the securities that we specify in the applicable prospectus supplement at the exercise price that we describe in the applicable prospectus supplement. Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants at any time up to the specified time on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Holders of the warrants may exercise the warrants by delivering the warrant certificate or agreement representing the warrants to be exercised together with specified information, and paying the required amount to the warrant agent or the Company in immediately available funds, as provided in the applicable prospectus supplement. We will set forth in the warrant certificate or agreement and in the applicable prospectus supplement the information that the holder of the warrant will be required to deliver to the warrant agent or the Company.

Upon receipt of the required payment and the warrant certificate or agreement properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement, we will issue and deliver the securities purchasable upon such exercise. If fewer than all of the warrants represented by the warrant certificate are exercised, then we will issue a new warrant certificate for the remaining amount of warrants. If we so indicate in the applicable prospectus supplement, holders of the warrants may surrender securities as all or part of the exercise price for warrants.

Enforceability of Rights by Holders of Warrants

Each warrant agent will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder of any warrant. A single bank or trust company may act as warrant agent for more than one issue of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action its right to exercise, and receive the securities purchasable upon exercise of, its warrants.

TABLE OF CONTENTS

DESCRIPTION OF UNITS

The following description, together with the additional information we may include in any applicable prospectus supplements, summarizes the material terms and provisions of the units that we may offer under this prospectus. While the terms we have summarized below will apply generally to any units that we may offer under this prospectus, we will describe the particular terms of any series of units in more detail in the applicable prospectus supplement. The terms of any units offered under a prospectus supplement may differ from the terms described below. However, no prospectus supplement will fundamentally change the terms that are set forth in this prospectus or offer a security that is not registered and described in this prospectus at the time of its effectiveness.

We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from a current report on Form 8-K that we file with the SEC, the form of unit agreement that describes the terms of the series of units we are offering, and any supplemental agreements, before the issuance of the related series of units. The following summaries of material terms and provisions of the units are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement and any supplemental agreements applicable to a particular series of units. We urge you to read the applicable prospectus supplements related to the particular series of units that we sell under this prospectus, as well as the complete unit agreement and any supplemental agreements that contain the terms of the units.

General

We may issue units comprised of one or more shares of common stock and warrants in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date. We will describe in the applicable prospectus supplement the terms of the series of units, including:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provisions of the governing unit agreement that differ from those described below; and
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units.

The provisions described in this section, as well as those described under “Description of Common Stock and Preferred Stock — Common Stock” and “Description of Warrants” will apply to each unit and to any common stock or warrant included in each unit, respectively.

Issuance in Series

We may issue units in such amounts and in numerous distinct series as we determine.

Enforceability of Rights by Holders of Units

Each unit agent, if applicable, will act solely as our agent under the applicable unit agreement and will not assume any obligation or relationship of agency or trust with any holder of any unit. A single bank or trust company may act as unit agent for more than one series of units. A unit agent will have no duty or responsibility in case of any default by us under the applicable unit agreement or unit, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a unit may, without the consent of the related unit agent or the holder of any other unit, enforce by appropriate legal action its rights as holder under any security included in the unit.

We, any unit agents and any of their agents may treat the registered holder of any unit certificate as an absolute owner of the units evidenced by that certificate for any purpose and as the person entitled to exercise the rights attaching to the units so requested, despite any notice to the contrary. See “Legal Ownership of Securities.”

TABLE OF CONTENTS

LEGAL OWNERSHIP OF SECURITIES

We can issue securities in registered form or in the form of one or more global securities. We describe global securities in greater detail below. We refer to those persons who have securities registered in their own names on the books that we or any applicable trustee or depository or warrant agent maintain for this purpose as the “holders” of those securities. These persons are the legal holders of the securities. We refer to those persons who, indirectly through others, own beneficial interests in securities that are not registered in their own names, as “indirect holders” of those securities. As we discuss below, indirect holders are not legal holders, and investors in securities issued in book-entry form or in street name will be indirect holders.

Book-Entry Holders

We may issue securities in book-entry form only, as we will specify in the applicable prospectus supplement. This means securities may be represented by one or more global securities registered in the name of a financial institution that holds them as depository on behalf of other financial institutions that participate in the depository’s book-entry system. These participating institutions, which are referred to as participants, in turn, hold beneficial interests in the securities on behalf of themselves or their customers.

Only the person in whose name a security is registered is recognized as the holder of that security. Global securities will be registered in the name of the depository or its participants. Consequently, for global securities, we will recognize only the depository as the holder of the securities, and we will make all payments on the securities to the depository. The depository passes along the payments it receives to its participants, which in turn pass the payments along to their customers who are the beneficial owners. The depository and its participants do so under agreements they have made with one another or with their customers; they are not obligated to do so under the terms of the securities.

As a result, investors in a global security will not own securities directly. Instead, they will own beneficial interests in a global security, through a bank, broker or other financial institution that participates in the depository’s book-entry system or holds an interest through a participant. As long as the securities are issued in global form, investors will be indirect holders, and not legal holders, of the securities.

Street Name Holders

We may terminate a global security or issue securities that are not issued in global form. In these cases, investors may choose to hold their securities in their own names or in “street name.” Securities held by an investor in street name would be registered in the name of a bank, broker or other financial institution that the investor chooses, and the investor would hold only a beneficial interest in those securities through an account he or she maintains at that institution.

For securities held in street name, we or any applicable trustee or depository will recognize only the intermediary banks, brokers and other financial institutions in whose names the securities are registered as the holders of those securities, and we or any such trustee or depository will make all payments on those securities to them. These institutions pass along the payments they receive to their customers who are the beneficial owners, but only because they agree to do so in their customer agreements or because they are legally required to do so. Investors who hold securities in street name will be indirect holders, not holders, of those securities.

Legal Holders

Our obligations, as well as the obligations of any applicable trustee or third party employed by us or a trustee, run only to the legal holders of the securities. We do not have obligations to investors who hold beneficial interests in global securities, in street name or by any other indirect means. This will be the case whether an investor chooses to be an indirect holder of a security or has no choice because we are issuing the securities only in global form.

For example, once we make a payment or give a notice to the holder, we have no further responsibility for the payment or notice even if that holder is required, under agreements with its participants or customers or by law, to pass it along to the indirect holders but does not do so. Similarly, we may want to obtain the approval of the holders to amend an indenture, to relieve us of the consequences of a default or

TABLE OF CONTENTS

of our obligation to comply with a particular provision of an indenture, or for other purposes. In such an event, we would seek approval only from the legal holders, and not the indirect holders, of the securities. Whether and how the holders contact the indirect holders is up to the legal holders.

Special Considerations for Indirect Holders

If you hold securities through a bank, broker or other financial institution, either in book-entry form because the securities are represented by one or more global securities or in street name, you should check with your own institution to find out:

- how it handles securities payments and notices;
- whether it imposes fees or charges;
- how it would handle a request for the holders' consent, if ever required;
- whether and how you can instruct it to send you securities registered in your own name so you can be a holder, if that is permitted in the future;
- how it would exercise rights under the securities if there were a default or other event triggering the need for holders to act to protect their interests; and
- if the securities are in book-entry form, how the depository's rules and procedures will affect these matters.

Global Securities

A global security is a security that represents one or any other number of individual securities held by a depository. Generally, all securities represented by the same global securities will have the same terms.

Each security issued in book-entry form will be represented by a global security that we issue to, deposit with and register in the name of a financial institution or its nominee that we select. The financial institution that we select for this purpose is called the depository. Unless we specify otherwise in the applicable prospectus supplement, The Depository Trust Company, New York, New York, known as DTC, will be the depository for all securities issued in book-entry form.

A global security may not be transferred to or registered in the name of anyone other than the depository, its nominee or a successor depository, unless special termination situations arise. We describe those situations below under “— Special Situations When a Global Security Will Be Terminated.” As a result of these arrangements, the depository, or its nominee, will be the sole registered owner and legal holder of all securities represented by a global security, and investors will be permitted to own only beneficial interests in a global security. Beneficial interests must be held by means of an account with a broker, bank or other financial institution that in turn has an account with the depository or with another institution that does. Thus, an investor whose security is represented by a global security will not be a legal holder of the security, but only an indirect holder of a beneficial interest in the global security.

If the prospectus supplement for a particular security indicates that the security will be issued as a global security, then the security will be represented by a global security at all times unless and until the global security is terminated. If termination occurs, we may issue the securities through another book-entry clearing system or decide that the securities may no longer be held through any book-entry clearing system.

Special Considerations for Global Securities

As an indirect holder, an investor's rights relating to a global security will be governed by the account rules of the investor's financial institution and of the depository, as well as general laws relating to securities transfers. We do not

recognize an indirect holder as a holder of securities and instead deal only with the depositary that holds the global security.

15

TABLE OF CONTENTS

If securities are issued only as global securities, an investor should be aware of the following:

- an investor cannot cause the securities to be registered in his or her name, and cannot obtain non-global certificates for his or her interest in the securities, except in the special situations we describe below;
- an investor will be an indirect holder and must look to his or her own bank or broker for payments on the securities and protection of his or her legal rights relating to the securities, as we describe above;
- an investor may not be able to sell interests in the securities to some insurance companies and to other institutions that are required by law to own their securities in non-book-entry form;
- an investor may not be able to pledge his or her interest in the global security in circumstances where certificates representing the securities must be delivered to the lender or other beneficiary of the pledge in order for the pledge to be effective;
- the depositary's policies, which may change from time to time, will govern payments, transfers, exchanges and other matters relating to an investor's interest in the global security. We and any applicable trustee have no responsibility for any aspect of the depositary's actions or for its records of ownership interests in the global security. We and the trustee also do not supervise the depositary in any way;
- the depositary may, and we understand that DTC will, require that those who purchase and sell interests in the global security within its book-entry system use immediately available funds, and your broker or bank may require you to do so as well; and
- financial institutions that participate in the depositary's book-entry system, and through which an investor holds its interest in the global security, may also have their own policies affecting payments, notices and other matters relating to the securities. There may be more than one financial intermediary in the chain of ownership for an investor. We do not monitor and are not responsible for the actions of any of those intermediaries.

Special Situations When a Global Security Will Be Terminated

In a few special situations described below, a global security will terminate and interests in it will be exchanged for physical certificates representing those interests. After that exchange, the choice of whether to hold securities directly or in street name will be up to the investor. Investors must consult their own banks or brokers to find out how to have their interests in securities transferred to their own names, so that they will be direct holders. We have described the rights of holders and street name investors above.

A global security will terminate when the following special situations occur:

- if the depositary notifies us that it is unwilling, unable or no longer qualified to continue as depositary for that global security and we do not appoint another institution to act as depositary within 90 days;
- if we notify any applicable trustee that we wish to terminate that global security; or
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if an event of default has occurred with regard to securities represented by that global security and has not been cured or waived.

The applicable prospectus supplement may also list additional situations for terminating a global security that would apply only to the particular series of securities covered by the prospectus supplement. When a global security terminates, the depositary, and neither we nor any applicable trustee, is responsible for deciding the names of the institutions that will be the initial direct holders.

16

TABLE OF CONTENTS

PLAN OF DISTRIBUTION

We may sell the securities to or through underwriters or dealers, through agents, or directly to one or more purchasers. A prospectus supplement or supplements (and any related free writing prospectus that we may authorize to be provided to you) will describe the terms of the offering of the securities, including, to the extent applicable:

- the name or names of any underwriters, if any;
- the purchase price of the securities and the proceeds we will receive from the sale;
- any over-allotment options under which underwriters may purchase additional securities from us;
- any agency fees or underwriting discounts and other items constituting agents' or underwriters' compensation;
- any public offering price;
- any discounts or concessions allowed or reallocated or paid to dealers; and
- any securities exchange or market on which the securities may be listed.

Only underwriters named in the prospectus supplement are underwriters of the securities offered by the prospectus supplement.

If underwriters are used in the sale, they will acquire the securities for their own account and may resell the securities from time to time in one or more transactions at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. We may offer the securities to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase all of the securities offered by the prospectus supplement. Any public offering price and any discounts or concessions allowed or reallocated or paid to dealers may change from time to time. We may use underwriters with whom we have a material relationship. We will describe in the prospectus supplement, naming the underwriter, the nature of any such relationship.

We may sell securities directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of securities and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, our agent will act on a best-efforts basis for the period of its appointment.

We may authorize agents or underwriters to solicit offers by certain types of institutional investors to purchase securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in the prospectus supplement.

We may provide agents and underwriters with indemnification against civil liabilities related to this offering, including liabilities under the Securities Act of 1933, as amended (the "Securities Act"), or contribution with respect to payments that the agents or underwriters may make with respect to these liabilities. Agents and underwriters may engage in transactions with, or perform services for, us in the ordinary course of business.

All securities we offer, other than common stock, will be new issues of securities with no established trading market. Any underwriters may make a market in these securities, but will not be obligated to do so and may discontinue any

market making at any time without notice. We cannot guarantee the liquidity of the trading markets for any securities. Any underwriter may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Regulation M under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Overallotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Short covering transactions involve purchases of the securities in the open

17

TABLE OF CONTENTS

market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a covering transaction to cover short positions. Those activities may cause the price of the securities to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time.

Any underwriters who are qualified market makers on The Nasdaq Global Market may engage in passive market making transactions in the securities on The Nasdaq Global Market in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the securities. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

In compliance with guidelines of the Financial Industry Regulatory Authority ("FINRA"), the maximum consideration or discount to be received by any FINRA member or independent broker dealer may not exceed 8% of the aggregate amount of the securities offered pursuant to this prospectus and any applicable prospectus supplement.

TABLE OF CONTENTS

LEGAL MATTERS

The validity of the securities in respect of which this prospectus is being delivered will be passed on for us by Wiggin and Dana LLP.

EXPERTS

The consolidated financial statements incorporated in this prospectus by reference to the CAS Medical Systems, Inc. Annual Report on Form 10-K for the year ended December 31, 2012 have been so incorporated in reliance on the report of CohnReznick LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the securities we are offering under this prospectus. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. You may read and copy the registration statement, as well as our reports, proxy statements and other information, at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. You can request copies of these documents by writing to the SEC and paying a fee for the copying cost. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the Public Reference Room. The SEC maintains an internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, where our SEC filings are also available. The address of the SEC's web site is "<http://www.sec.gov>." We maintain a website at <http://www.casmed.com>. Information contained in or accessible through our website does not constitute a part of this prospectus.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" information that we file with it into this prospectus, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is an important part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede the information in this prospectus. We incorporate by reference the documents listed below and all documents subsequently filed with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, prior to the termination of the offering of the securities covered by this prospectus:

- Current Report on Form 8-K filed May 13, 2013;
- Quarterly Report on Form 10-Q for the quarter ended March 31, 2013, filed May 14, 2013;
- Annual Report on Form 10-K for the year ended December 31, 2012, filed March 26, 2013; and

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The description of our capital stock set forth in the Registration Statement on Form S-18, filed on March 7, 1985

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, without charge upon written or oral request, a copy of any or all of the information that has been incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits that are specifically incorporated by reference into such documents. Requests should be directed to: CAS Medical Systems, Inc., Attention: Corporate Secretary, 44 East Industrial Road, Branford, CT 06405, telephone: (203) 488-6056.

TABLE OF CONTENTS

6,200,000 Shares
CAS Medical Systems, Inc.
Common Stock
\$1.30 per share

PROSPECTUS SUPPLEMENT

Craig-Hallum Capital Group
The date of this prospectus supplement is February 11, 2015
