

ICAD INC
 Form 424B5
 March 12, 2014
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Filed Pursuant to Rule 424(b)(5)
 Registration No. 333-176777

PROSPECTUS SUPPLEMENT

(To Prospectus dated September 30, 2011)

2,400,000 Shares of Common Stock

iCAD, Inc.

We are offering 2,400,000 shares of our common stock pursuant to this prospectus supplement and the accompanying prospectus.

Our common stock is listed on the NASDAQ Capital Market under the symbol ICAD. On March 11, 2014, the last reported sale price of our common stock on the NASDAQ Capital Market was \$11.53 per share.

Investing in our securities involves a high degree of risk. Before deciding whether to invest in our securities, you should review carefully the information described under the heading Risk Factors beginning on page S-11 of this prospectus supplement and on page 3 of the accompanying prospectus.

| | Per Share | Total |
|----------------------------------|----------------------|---------------|
| Public offering price | \$ 11.00 | \$ 26,400,000 |
| Underwriting discounts | \$ 0.6325 | \$ 1,518,000 |
| Proceeds, before expenses, to us | \$ 10.3675 | \$ 24,882,000 |

We have granted the underwriter an option to purchase up to an additional 360,000 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. In addition to the underwriting discount, we have agreed to pay up to \$150,000 of the fees and expenses of the underwriter in connection with this offering. See Underwriting.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The underwriter expects to deliver the shares of our common stock on or about March 17, 2014, subject to customary closing conditions.

Craig-Hallum Capital Group

The date of this prospectus supplement is March 12, 2014.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, utilizing a shelf registration process. Under this process, we may sell from time to time in one or more offerings up to an aggregate of \$75,000,000 in our securities described in the accompanying prospectus.

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this offering and also adds to and updates information contained in the accompanying prospectus. The second part is the accompanying prospectus, which provides general information, some of which may not apply to this offering. If information in this prospectus supplement is inconsistent with the accompanying prospectus, you should rely on this prospectus supplement.

You should rely only on the information contained in or incorporated by reference in this prospectus supplement and the accompanying prospectus. We have not, and the underwriter has not, authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are making an offer to sell common stock only in jurisdictions where offers and sales are permitted. You should assume that the information appearing in this prospectus supplement, the accompanying prospectus and in the documents incorporated by reference is accurate only as of their respective dates or other dates which are specified in those documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

It is important for you to read and consider all of the information contained in or incorporated by reference in this prospectus supplement and the accompanying prospectus in making your investment decision. See **Where You Can Find More Information** on page S-18 of this prospectus supplement and page 18 of the accompanying prospectus.

Unless the context otherwise requires, references in this prospectus supplement to **iCAD**, **we**, **us** and **our** refer to **iCAD, Inc.** and its subsidiary.

FORWARD-LOOKING STATEMENTS

Certain statements contained in or incorporated by reference in this prospectus supplement and the accompanying prospectus that are not historical facts contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements involve a number of known and unknown risks, uncertainties and other factors that could cause our actual results, performance or achievements to be materially different from any future results, performance or achievement expressed or implied by such forward-looking statements. The words **believe**, **demonstrate**, **intend**, **expect**, **estimate**, **anticipate**, **likely**, **seek** and similar identify forward-looking statements. These statements are based on assumptions and assessments made by our management in light of their experience and perception of historical trends, current conditions, expected future developments and other factors we believe to be appropriate. These forward-looking statements are subject to a number of risks and uncertainties, including but not limited to the following:

our significant losses and uncertainty of our ability to achieve and sustain profitability;

our ability to protect our patents and other proprietary rights;

our ability to defend ourselves in litigation matters;

our customers' ability to obtain appropriate coverage, and reimbursement from third-party payors, for our products and treatments;

our ability to create significant markets for our newly developed products and treatments;

our dependence on a limited number of customers;

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uncertainty of the growth of our product markets;

risk of impairment of our goodwill or other intangible assets;

risks related to regulatory and other legal requirements;

our significant costs of extensive regulatory compliance;

volatility of our operating and financial results;

risks relating to our existing and future debt obligations;

possible technological obsolescence of our products;

the impact of supply and manufacturing constraints or difficulties;

competitive pressures; and

other risks listed in Item 1A. Risk Factors of our Annual Report on Form 10-K for the year ended December 31, 2013, or Form 10-K, which are incorporated by reference in this prospectus supplement and accompanying prospectus.

Given these risks and uncertainties, investors should not place undue reliance on forward-looking statements as a prediction of actual results. Forward-looking statements contained in or incorporated by reference in this prospectus supplement and the accompanying prospectus present our views only as of the date of the applicable document containing such forward-looking statements. We do not assume any obligation, and do not intend to, update any forward-looking statement except as required by law. All forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by these cautionary statements.

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SUMMARY

This summary highlights information contained elsewhere in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference. This summary does not contain all of the information that you should consider before deciding to invest in our securities. You should read carefully this entire prospectus supplement and the accompanying prospectus, as well as the documents we incorporate by reference, including the section entitled Risk Factors beginning on page S-11 of this prospectus supplement and page 3 of the accompanying prospectus and our consolidated financial statements and the related notes, before making an investment decision.

iCAD, Inc.

Business Overview

iCAD is an industry-leading provider of advanced image analysis, workflow solutions and radiation therapy solutions for the early identification and treatment of cancer. We now report in two segments – Detection and Therapy.

We have grown primarily through acquisitions, including CADx, Qualia Computing, CAD Sciences and Xoft to become a broad player in the oncology market.

In the Detection segment, our industry-leading solutions include advanced image analysis and workflow solutions that enable healthcare professionals to better serve patients by identifying pathologies and pinpointing the most prevalent cancers earlier, a comprehensive range of high-performance, upgradeable Computer-Aided Detection (CAD) systems and workflow solutions for mammography, Magnetic Resonance Imaging (MRI) and Computed Tomography (CT).

We intend to continue the extension of our image analysis and clinical decision support solutions for mammography, MRI and CT imaging. We believe that advances in digital imaging techniques should bolster our efforts to develop additional commercially viable CAD/advanced image analysis and workflow products.

In the Therapy segment, we offer an isotope-free cancer treatment platform technology. The Xoft Electronic Brachytherapy System (Xoft eBx) can be used for the treatment of early-stage breast cancer, endometrial cancer, cervical cancer and non-melanoma skin cancer. We believe the Xoft eBx system platform indications represent strategic opportunities in the United States and International markets to offer differentiated treatment alternatives. In addition, the Xoft eBx system generates additional recurring revenue for the sale of consumables and related accessories which will continue to drive growth in this segment.

Strategy

iCAD is evolving from a business focused on image analysis for the early detection of cancers to a broader player in the oncology market. Our belief is that early detection in combination with earlier targeted intervention provides patients and healthcare providers with the best tools available to achieve better clinical outcomes resulting in a market demand that will drive market adoption for iCAD's solutions. We intend to provide customers with a broader portfolio of oncology solutions that address four key stages of the cancer care cycle: detection, diagnosis, treatment and monitoring.

The acquisition of Xoft in 2010 was a transformative event for our company. The Xoft eBx system is a disruptive radiation oncology treatment solution with significant cost, mobility, and treatment time advantages over its competitors. While the primary application of this system today is localized breast cancer treatment using a ten to

fifteen minute Intraoperatative Radiation Therapy (IORT) protocol, the Xofig eBx system platform can be used to treat a wide and growing array of additional cancers, including gynecological and non-melanoma skin cancers.

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We believe that the Xoft eBx system is uniquely well positioned to offer a differentiated treatment alternative for the approximately 110,000 annual new cases of early stage breast cancer in the U.S. The Xoft eBx system does not require a shielded environment and is relatively small in size, which means that it can easily be transported for use in virtually any clinical setting (including the operating room where IORT is delivered) under radiation oncology supervision. The Xoft System may also be used for Accelerated Partial Breast Irradiation (APBI), which can be delivered twice daily for five days. Along with the growing body of clinical evidence in support of breast IORT, there is considerable economic momentum behind the Xoft eBx system for IORT as the Centers for Medicare and Medicaid Services (CMS) recently enacted more favorable hospital and physician reimbursement effective January 1, 2014.

We view the additional Xoft eBx system platform indications as important opportunities in both the U.S. and international markets. Basal and Squamous Cell Carcinoma are two of the most prevalent types of skin cancer in the U.S. The Xoft eBx system, which utilizes an isotope-free miniaturized x-ray radiation source, enables radiation oncologists and dermatologists to collaborate in offering their patients a non-surgical treatment option that is particularly appropriate for certain challenging lesion locations on the ear, face, and neck. We intend to address the detection and diagnosis stages of the cancer care cycle through continued extension of our image analysis and clinical decision support solutions for mammography, MRI and CT imaging.

The table below presents the revenue and percentage of revenue attributable to our products and services for the years ended December 31, 2013, 2012 and 2011 (in thousands) derived from our audited historical consolidated financial statements. The following table should be read in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations and the audited historical consolidated financial statements and notes thereto included in the Form 10-K incorporated by reference in this prospectus supplement and the accompanying prospectus.

| | For the year ended December 31, | | | | | |
|---------------------------|---------------------------------|---------------|------------------|---------------|------------------|---------------|
| | 2013 | % | 2012 | % | 2011 | % |
| Detection: | | | | | | |
| Digital & MRI CAD revenue | \$ 7,930 | 24.0% | \$ 8,379 | 29.6% | \$ 13,256 | 46.3% |
| Film based revenue | 561 | 1.7% | 1,467 | 5.2% | 2,361 | 8.2% |
| Service | 8,414 | 25.4% | 7,416 | 26.2% | 7,148 | 24.9% |
| Detection revenue | 16,095 | 51.1% | 17,262 | 61.1% | 22,765 | 79.5% |
| Therapy: | | | | | | |
| Electronic brachytherapy | 11,065 | 33.5% | 8,130 | 28.8% | 3,711 | 13.0% |
| Service | 5,097 | 15.4% | 2,883 | 10.2% | 2,176 | 7.6% |
| Therapy revenue | 16,162 | 48.9% | 11,013 | 38.9% | 5,887 | 20.5% |
| Total revenue | \$ 33,067 | 100.0% | \$ 28,275 | 100.0% | \$ 28,652 | 100.0% |

Our Products and Solutions

iCAD develops and manufactures Electronic Brachytherapy products, digital mammography CAD products, and advanced image analysis and workflow solutions that are used in conjunction with MRI (breast and prostate) and CT based imaging of the colon.

Electronic Brachytherapy Products:

Electronic Brachytherapy (eBx) Treatment for Breast Cancer

Axxent® eBx

The portable Axxent eBx system uses isotope-free miniaturized X-ray tube technology to deliver therapy directly to cancer sites with minimal radiation exposure to surrounding healthy tissue. The Axxent eBx system is

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FDA-cleared for the treatment of early stage breast cancer, endometrial cancer and non-melanoma skin cancer, as well as for the treatment of other cancers or conditions where radiation therapy is indicated, including IORT. We offer FDA-cleared applicators utilized with the Axxent eBx system including breast applicators for IORT and APBI in the treatment of breast cancer, vaginal applicators for the treatment of endometrial cancer, cervical applicators for the treatment of cervical cancer and skin applicators for the treatment of non-melanoma skin cancers. The single-use breast IORT and APBI applicators are offered in a variety of sizes based on clinical need. The endometrial, cervical and skin applicators are reusable and are manufactured in various sizes based on the anatomical requirements of the patient or the size of the lesion. We also provide the 50kV isotope-free energy source, a comprehensive service warranty program, and various accessories such as the Axxent eBx Rigid Shield for internal IORT shielding. The 50kV energy source is sold either as an annual contract customized to individual customer volume/usage requirements or on a single unit basis.

We have recently made several enhancements to the Axxent eBx system controller including a new software interface enabling enhanced system functionality and an upgraded high voltage connection improving system performance. In early 2013, we received FDA clearance for a new applicator for use in the treatment of cervical cancer. This new applicator would further expand our product portfolio in the gynecological cancer market and enable customers to offer comprehensive electronic brachytherapy solutions to their patients in need of gynecological radiation therapy. Cervical cancer is a particularly large market opportunity outside of the United States, especially in areas of the world where screening for cancer of the cervix is less prevalent. In order to capitalize on the large market opportunity in non-melanoma skin cancer, we are developing several enhancements to the Xoft eBx System that will deliver particular value to customers treating non-melanoma skin cancer patients in a variety of clinical settings especially in office-based facilities. Current customers of the Xoft eBx system include university research and community hospitals, private and governmental institutions, doctors' offices, cancer care clinics, and veterinary facilities in the United States, Europe and Asia and strategic partnerships with radiation oncology service providers that enable the supervised delivery of the technology in dermatology offices.

Digital Mammography CAD and MRI CAD Products:***Advanced Image Analysis and Workflow Solutions in Breast Imaging (Mammography)***

iCAD develops and markets a comprehensive range of high-performance CAD solutions for digital mammography systems. iCAD's SecondLook systems are based on sophisticated patented algorithms that analyze the data automatically identifying and marking suspicious regions in the images. The system provides the radiologist with a second look which helps the radiologist detect actionable missed cancers earlier than screening mammography alone. SecondLook detects and identifies suspicious masses and micro-calcifications utilizing image processing, pattern recognition and artificial intelligence techniques. We launched and began shipments of our next generation SecondLook Digital CAD, SecondLook® Premier* to Europe in December of 2010. SecondLook Premier was developed to provide breast imagers with the most advanced and customizable digital mammography CAD system providing improved cancer detection through increased sensitivity, reduced false positives and robust clinical decision support tools. iCAD continues to develop CAD products for additional digital imaging (full field digital mammography and computed radiography) providers. Developmental work continues with picture archiving and communication system (PACS) companies and iCAD is focused on developing new, more efficient ways of integrating CAD into PACS review workstations to create a streamlined workflow for mammography and potentially other specialties.

In June 2012, we introduced our next generation of mammography CAD products, PowerLook Advanced Mammography Platform® (AMP). The technology expands on iCAD's SecondLook platform and is the CAD platform for future breast imaging applications. PowerLook AMP is designed to function with leading digital mammography

systems (FFDM and computed radiography) including systems sold by GE Healthcare, Siemens Medical Systems, Fuji Medical Systems, Hologic, Inc., Sectra Medical Systems, Philips, IMS Giotto, Agfa Corporation, and Planmed. We believe we have strong development partnerships with imaging providers.

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Advanced Image Analysis and Workflow Solutions in MRI Imaging Breast and Prostate

In July 2012, iCAD entered into a strategic partnership agreement with Invivo Corp., a subsidiary of Philips Healthcare. With this agreement, iCAD began developing the DynaCAD product software for breast and prostate MR image analysis workstations to help radiologists find cancer earlier and more efficiently. Invivo sells the DynaCAD product both directly and through the Philips global distribution network.

DynaCAD offers a suite of FDA cleared dynamic contrast enhanced (DCE) MRI analysis solutions for breast, prostate, and other organs. Each of the three modules delivers objective, consistent quantitative analysis of DCE MR images. The DynaCAD software automates the process of drawing regions of interest, minimizing potential errors inherent in manual processes. Once a region of interest has been identified, a sophisticated algorithm analyzes changes in the MR signal in the tissue to help clinicians discern biological processes taking place in malignant versus benign tumors. The DynaCAD algorithm uniquely uses all data available from an MR study, resulting in more consistent analysis across magnets and contrast agents. Also available within DynaCAD is a breast interventional and prostate interventional module which allows for MRI guided biopsies of the breast and prostate to be performed, respectively. DynaCAD's combination of quantitative and qualitative information reveals characteristics of tumor physiology, and can aid in detecting and localizing cancer as well as supporting treatment planning and monitoring of the lesion over time.

Advanced Image Analysis and Workflow Solutions in CT Colonography

VeraLook

iCAD introduced a CAD solution, VeraLook, in August 2010 following FDA clearance of the product. This solution is designed to support detection of colonic polyps in conjunction with CT colonography. iCAD believes that CAD for CT colonography is a natural extension of iCAD's core competencies in image analysis and image processing. Throughout 2012, iCAD continued to globally distribute the VeraLook product with advanced visualization reading workstations manufactured by Vital Images, a Toshiba Medical System Group Company.

Film Based Products

Products for Converting Mammography Films to Digital Images

TotalLook MammoAdvantage

The TotalLook MammoAdvantage (TLMA) system is iCAD's second generation mammography specific digitizer. TLMA provides a comprehensive film-to-digital solution making it easier for facilities to transition from film to digital mammography. The product converts prior mammography films to digital images delivering high resolution digitized images to meet the critical specifications required for conversion of prior films.

The Market

Approximately 39 million mammograms were performed in the U.S. in 2013. Although mammography is the most effective method for early detection of breast cancer, studies have shown that an estimated 20% or more of all breast cancers go undetected in the screening stage. More than half of the cancers missed are due to observational errors. CAD, when used in conjunction with mammography, has been proven to help reduce the risk of these observational errors by as much as 20%. Earlier cancer detection typically leads to more effective, less invasive, and less costly treatment options which ultimately should translate into improved patient survival rates. CAD, as an adjunct to

mammography screening, is reimbursable in the U.S. under federal and most third party insurance programs. This reimbursement provides economic support for the acquisition of CAD products by women's healthcare providers. Market growth has also been driven in recent years by the introduction of full field digital mammography (FFDM) systems.

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In the U.S., approximately 8,700 facilities (with approximately 13,000 mammography systems) were certified to provide mammography screening in 2013. Historically, these centers have used conventional film-based medical imaging technologies to capture and analyze breast images. Of the 8,700 certified facilities, to date approximately 93% have acquired FFDM systems. A FFDM system generates a digital image eliminating film used in conventional mammography.

New Market Opportunities

Radiation Therapy: Electronic Brachytherapy

Radiation therapy is an important tool in the fight against cancer. When radiation interacts with a cell it alters the cell DNA (or genetic make-up) and its ability to reproduce, which ultimately leads to cell death. eBx is a form of radiation therapy that is delivered directly at the location of the tumor and targets and kills cancer cells.

The Xoft eBx system utilizes a miniaturized high dose rate yet low energy X-ray source to apply radiation directly to the cancerous site. The goal is to direct the radiation dose to the size and shape of the cancerous area while sparing healthy tissue and organs. The Xoft technology delivers clinical dose rates similar to traditional radio-active systems. However, because of the electronic nature of the Xoft technology, the dose fall off is much faster, thus lowering the radiation exposure outside of the prescription area. Given this rapid dose fall off, there is no need for a leaded vault as compared to traditional radiation therapy, enabling the Xoft eBx system to be transported to different locations within the same facility or between multiple facilities.

Electronic Brachytherapy can be delivered during an operative procedure and may be used as a primary or secondary modality over a course of days. This technology enables radiation oncology departments in hospitals, clinics and physician offices to perform traditional radiotherapy treatments and offer advanced treatments such as IORT. Current customers of the Xoft eBx system include university research and community hospitals, private and governmental institutions, doctors' offices, cancer care clinics, and veterinary facilities.

Computed Tomography Applications and Colonic Polyp Detection

CT is a well-established and widely used imaging technology that has evolved rapidly over the last few years. CT equipment is used to image cross-sectional slices of various parts of the human body. When combined, these slices provide detailed volumetric representations of the imaged areas. The use of multi-detectors in CT equipment has progressed in just a few years from 4 slices to 8, 16, 64 slices and beyond, resulting in vastly improved image quality. The image quality improvements resulting from the increased number of slices per procedure and greatly increased imaging speeds have expanded the use of CT imaging in both the number of procedures performed as well as the applications for which it is utilized. It was estimated by IMV that over 85.3 million CT procedures were performed in 2011 in the U.S. alone with an installed base of approximately 13,775 scanners at 8,500 locations. While the increased number of cross sectional slices provides important and valuable diagnostic information, it adds to the challenge of managing and interpreting the large volume of data generated. We believe that the challenges in CT imaging present us with opportunities to provide automated image analysis and clinical decision support solutions.

Magnetic Resonance Imaging (MRI) Applications – Breast and Prostate Cancer Detection

In addition to mammography and CT imaging modalities, the interpretation of MRI exams also benefits from advanced image analysis and clinical decision support tools. Radiologists turn to MRI to examine the soft tissues, blood vessels, and organs in the head, neck, chest, abdomen, and pelvis to help them diagnose and monitor tumors, heart problems, liver diseases and other organs, such as breast and prostate for possible links to cancer. MRI uses

magnets and radio waves instead of x-rays to produce very detailed, cross-sectional images of the body, and can be used to look specifically at those areas.

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In the future, MRI imaging may have an expanded role in the management of prostate cancer patients, particularly for management strategies involving active surveillance. As more men consider watchful waiting or delaying active treatment of their cancer, advances in imaging will help make these decisions easier, based more on solid science than on the assumption that a man's prostate cancer is slow growing.

Corporate Information

We are a Delaware company founded in 1984 and our principal executive offices are located at 98 Spit Brook Road, Suite 100, Nashua, New Hampshire 03062. Our telephone number is (603) 882-5200 and our website address is www.icadmed.com. We have included our website address in this prospectus supplement as an inactive textual reference only. The information on, or that may be accessed through, our website is not incorporated by reference into this prospectus supplement or the accompanying prospectus.

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The following table sets forth, for the periods and dates indicated, our summary financial data. The summary financial data has been derived from our audited historical consolidated financial statements and accompanying notes for the years ended December 31, 2013 and 2012. The results included in this table are not necessarily indicative of future performance. The following table should be read in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations and the audited historical consolidated financial statements and accompanying notes thereto included in the Form 10-K, which is incorporated by reference in this prospectus supplement and the accompanying prospectus.

| (Dollar amounts in thousands, except per share amounts) | Twelve Months Ended | |
|---|---------------------|------------|
| | December 31, | |
| | 2013 | 2012 |
| Revenue: | | |
| Products | \$ 19,556 | \$ 17,976 |
| Service and supplies | 13,511 | 10,299 |
| Total revenue | 33,067 | 28,275 |
| Cost of revenue: | | |
| Products | 5,933 | 4,834 |
| Service and supplies | 3,111 | 2,479 |
| Amortization of technology | 938 | 931 |
| Total cost of revenue | 9,982 | 8,244 |
| Gross profit | 23,085 | 20,031 |
| Gross margin percent | 69.8% | 70.8% |
| Operating expenses: | | |
| Engineering and product development | 7,694 | 7,769 |
| Marketing and sales | 10,427 | 10,708 |
| General and administrative | 6,740 | 6,966 |
| Total operating expenses | 24,861 | 25,443 |
| Loss from operations | (1,776) | (5,412) |
| Other expense: | | |
| Loss from change in fair value of warrants | (2,448) | (539) |
| Interest expense | (3,277) | (3,415) |
| Other income | 19 | 35 |
| Other expense, net | (5,706) | (3,919) |
| Loss before income tax | (7,482) | (9,331) |
| Income tax expense | 126 | 43 |
| Net loss and comprehensive loss | \$ (7,608) | \$ (9,374) |

| | | |
|---|-----------|-----------|
| Net loss per share | | |
| Basic and diluted | \$ (0.70) | \$ (0.87) |
| Weighted Average Number of Shares Used in Computing Loss Per Share: | | |
| Basic and diluted | 10,842 | 10,796 |

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THE OFFERING

| | |
|---|---|
| Common stock offered by us | 2,400,000 shares of common stock, par value \$.01 per share. |
| Option to purchase additional shares | We have granted to the underwriter an option, which is exercisable within 30 days from the date of this prospectus supplement, to purchase up to 360,000 additional shares of common stock to cover over-allotments, if any. |
| Common stock outstanding immediately after this offering | 13,406,596 shares of common stock, or 13,766,596 shares of common stock, if the underwriter exercises in full its option to purchase up to 360,000 additional shares of common stock. |
| Use of proceeds | We estimate that our net proceeds from this offering will be approximately \$24.5 million, after deducting underwriting discounts and offering expenses payable by us (\$28.2 million if the underwriter exercises in full its option to purchase additional shares of common stock). We intend to use the net proceeds from this offering of common stock for working capital and other general corporate purposes. See Use of Proceeds. |
| Risk Factors | See the information described under the heading Risk Factors beginning on page S-11 of this prospectus supplement and other information contained in or incorporated by reference in this prospectus supplement and the accompanying prospectus for a discussion of factors you should consider carefully before investing in our common stock. |
| NASDAQ Capital Market symbol | ICAD |
| The number of shares of common stock that will be outstanding immediately after this offering is based on 11,006,596 shares outstanding as of February 28, 2014 and excludes: | |
| 1,474,845 shares of our common stock reserved for future issuance upon the exercise of outstanding options and vesting of unvested restricted stock; | |
| 550,000 shares of our common stock reserved for future issuance upon the exercise of outstanding warrants; and | |

360,000 shares of our common stock issuable by us if the underwriter exercises its option to purchase additional shares of common stock in full.

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RISK FACTORS

An investment in our securities involves a high degree of risk. You should consider carefully the risk factors described below and set forth in the Risk Factors section of the Form 10-K, together with the other information contained in or incorporated by reference in this prospectus supplement and the accompanying prospectus, including our consolidated financial statements and the related notes, before deciding to invest in our common stock. We operate in a changing environment that involves numerous known and unknown risks and uncertainties that could materially adversely affect our operations. If any of such risks occur, our business, financial condition, results of operations and the value of our common stock could be materially and adversely affected. In such case, you may lose all or part of your investment in our common stock.

Risks Related to This Offering and Our Common Stock

You will experience immediate dilution in the book value per share of the common stock you purchase.

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 \$10.17 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.

Our management will have broad discretion over the use of the net proceeds from this offering.

We currently intend to use the net proceeds from this offering for working capital and other general corporate purposes. We have not determined the amounts we plan to spend for various working capital and general corporate purposes or the timing of these expenditures. Accordingly, our management will have considerable discretion in the application of the net proceeds from this offering, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds from this offering are being used appropriately. The net proceeds may be used for corporate purposes that do not increase our operating results or market value. Until the net proceeds are used, they may be placed in investments that do not produce income or that lose value.

The market price of our common stock has been, and may continue to be, volatile which could reduce the market price of our common stock.

The publicly traded shares of our common stock have experienced, and may experience in the future, significant price and volume fluctuations. This market volatility could reduce the market price of our common stock without regard to our operating performance. In addition, the trading price of our common stock could change significantly in response to actual or anticipated variations in our quarterly operating results, announcements by us or our competitors, factors affecting the medical imaging industry generally, changes in national or regional economic conditions, changes in securities analysts' estimates for us or our competitors or industry's future performance or general market conditions, making it more difficult for shares of our common stock to be sold at a favorable price or at all. The market price of our common stock could also be reduced by general market price declines or market volatility in the future or future declines or volatility in the prices of stocks for companies in our industry.

A substantial number of shares of our common stock are eligible for future sale, and the sale of shares of common stock into the market, or the perception that such sales may occur, may depress our stock price.

Sales of substantial additional shares of our common stock in the public market, or the perception that these sales may occur, may significantly lower the market price of our common stock. We are unable to estimate the amount, timing or nature of future sales of shares of our common stock. We have previously issued a substantial

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number of shares of common stock, which are eligible for resale under Rule 144 of the Securities Act of 1933, as amended, or the Securities Act, and may become freely tradable. We have also registered shares that are issuable upon the exercise of options and warrants. If holders of options or warrants choose to exercise their securities and sell shares of common stock issued upon the exercise in the public market, or if holders of currently restricted common stock choose to sell such shares of common stock in the public market under Rule 144 or otherwise, or attempt to publicly sell such shares all at once or in a short time period, the prevailing market price for our common stock may decline.

Future issuances of shares of our common stock may cause significant dilution of equity interests of existing holders of common stock and decrease the market price of shares of our common stock.

We have previously issued options and warrants that are exercisable into a significant number of shares of our common stock. Should existing holders of options or warrants exercise their securities into shares of our common stock, it may cause significant dilution of equity interests of existing holders of our common stock and reduce the market price of shares of our common stock.

Provisions in our corporate charter and in Delaware law could make it more difficult for a third party to acquire us, discourage a takeover and adversely affect existing stockholders.

Our certificate of incorporation authorizes the Board of Directors to issue up to 1,000,000 shares of blank check preferred stock. The preferred stock may be issued in one or more series, the terms of which may be determined at the time of issuance by our Board of Directors, without further action by stockholders, and may include, among other things, voting rights (including the right to vote as a series on particular matters), preferences as to dividends and liquidation, conversion and redemption rights, and sinking fund provisions. Although there are currently no shares of preferred stock outstanding, future holders of preferred stock may have rights superior to our common stock and such rights could also be used to restrict our ability to merge with, or sell our assets to a third party.

We are also subject to the provisions of Section 203 of the Delaware General Corporation Law, which could prevent us from engaging in a business combination with a 15% or greater stockholder for a period of three years from the date such person acquired that status unless appropriate board or stockholder approvals are obtained.

These provisions could deter unsolicited takeovers or delay or prevent changes in our control or management, including transactions in which stockholders might otherwise receive a premium for their shares over the then current market price. These provisions may also limit the ability of stockholders to approve transactions that they may deem to be in their best interests.

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USE OF PROCEEDS

We estimate that the net proceeds of this offering to us will be approximately \$24.5 million, or \$28.2 million if the underwriter exercises in full its option to purchase additional shares of common stock, after deducting underwriting discounts and our estimated offering expenses. We intend to use the net proceeds from this offering for working capital and other general corporate purposes. Pending the use of the net proceeds from this offering as described above, we intend to invest the proceeds in investment grade, interest-bearing instruments. Our management will have significant flexibility in applying the net proceeds of this offering.

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Table of Contents**PRICE RANGE OF OUR COMMON STOCK**

Our common stock is traded on the NASDAQ Capital Market under the symbol ICAD . The last reported sales price of our common stock on the NASDAQ Capital Market on March 11, 2014 was \$11.53 per share.

The following table sets forth, for the periods indicated, the high and low sale prices for our common stock.

| | High | Low |
|--|-------------|------------|
| Year ending December 31, 2014 | | |
| First Quarter (through March 11, 2014) | \$ 14.11 | \$ 10.44 |
| Year ended December 31, 2013 | | |
| First Quarter | \$ 6.90 | \$ 4.25 |
| Second Quarter | 6.62 | 4.24 |
| Third Quarter | 6.25 | 5.27 |
| Fourth Quarter | 12.18 | 5.16 |
| Year ended December 31, 2012 | | |
| First Quarter | \$ 3.45 | \$ 2.25 |
| Second Quarter | 2.90 | 2.10 |
| Third Quarter | 2.99 | 1.75 |
| Fourth Quarter | 5.12 | 1.85 |

As of February 7, 2014, there were 356 holders of record of our common stock.

We have not paid any cash dividends on our common stock to date, and we do not expect to pay cash dividends in the foreseeable future. Future dividend policy will depend on our earnings, capital requirements, financial condition, and other factors considered relevant by our Board of Directors. There are no non-statutory restrictions on our present ability to pay dividends.

Table of Contents**DILUTION**

Our net tangible book value as of December 31, 2013 was approximately \$(13.4) million, or approximately \$(1.22) per share. Net tangible book value per share is determined by dividing our total tangible assets, less total liabilities, by the number of shares of our common stock outstanding as of December 31, 2013.

After giving effect to our sale of 2,400,000 shares of our common stock in this offering at the offering price of \$11.00 per share, and after deducting the underwriting discounts and our estimated offering expenses payable by us, our as adjusted net tangible book value as of December 31, 2013 would have been approximately \$11.1 million, or \$0.83 per share. This represents an immediate increase in net tangible book value of \$2.05 per share to existing stockholders and immediate dilution in net tangible book value of \$10.17 per share to new investors participating in this offering at the offering price. The following table illustrates this dilution on a per share basis:

| | |
|---|-----------|
| Offering price for one share of common stock | \$ 11.00 |
| Net tangible book value per share as of December 31, 2013 | \$ (1.22) |
| Increase per share attributable to new investors | \$ 2.05 |
| As adjusted net tangible book value per share after this offering | \$ 0.83 |
| Dilution per share to new investors | \$ 10.17 |

If the underwriter exercises in full its option to purchase 360,000 additional shares of common stock at the public offering price of \$11.00 per share, the as adjusted net tangible book value after this offering would be approximately \$1.08 per share, representing an increase in net tangible book value of approximately \$2.30 per share to existing stockholders and immediate dilution in net tangible book value of approximately \$9.92 per share to new investors purchasing our common stock in this offering at the public offering price.

The information set forth above is based on 10,898,288 shares of common stock issued and outstanding as of December 31, 2013 and excludes:

1,551,205 shares of common stock reserved for future issuance upon the exercise of options and vesting of unvested restricted stock outstanding as of December 31, 2013; and

550,000 shares of common stock reserved for future issuance upon the exercise of warrants outstanding as of December 31, 2013.

The above illustration of dilution per share to investors participating in this offering assumes no exercise of outstanding options or warrants to purchase our common stock. The exercise of outstanding options or warrants having an exercise price less than the offering price will increase dilution to new investors. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

Table of Contents**UNDERWRITING**

The underwriter named below has agreed to buy, subject to the terms of the underwriting agreement, the number of shares of common stock listed opposite its name below. The underwriter is committed to purchase and pay for all of the shares if any are purchased, other than those shares covered by the over-allotment option described below.

| Underwriter | Number of Shares |
|--------------------------------|---------------------------------|
| Craig-Hallum Capital Group LLC | 2,400,000 |

The underwriter has advised us that it proposes to offer the shares of common stock to the public at a price of \$11.00 per share. The underwriter proposes to offer the shares of common stock to certain dealers at the same price less a concession of not more than \$0.3795 per share. After the offering, these figures may be changed by the underwriter.

We have granted to the underwriter an option to purchase up to an additional 360,000 shares of common stock from us at the same price to the public, and with the same underwriting discount, as set forth in the table below. The underwriter may exercise this option any time during the 30 day period after the date of this prospectus supplement, but only to cover over-allotments, if any. To the extent the underwriter exercises the option, the underwriter will become obligated, subject to certain conditions, to purchase the shares for which it exercises the option.

The table below summarizes the underwriting discounts that we will pay to the underwriter. These amounts are shown assuming both no exercise and full exercise of the over-allotment option. In addition to the underwriting discount, we have agreed to pay up to \$150,000 of the fees and expenses of the underwriter, which may include the fees and expenses of counsel to the underwriter. The fees and expenses of the underwriter that we have agreed to reimburse are not included in the underwriting discounts set forth in the table below. The underwriter has not received and will not receive from us any other item of compensation or expense in connection with this offering considered by the Financial Industry Regulatory Authority to be underwriting compensation under its rule of fair price. The underwriting discount and reimbursable expenses the underwriter will receive were determined through arms length negotiations between us and the underwriter.

| | Per Share | Total with no Over-Allotment | Total with Over-Allotment |
|--|------------------|---|--------------------------------------|
| Underwriting discount to be paid by us | \$ 0.6325 | \$ 1,518,000 | \$ 1,745,700 |

We estimate that the total expenses of this offering, excluding underwriting discounts, will be \$391,000. This includes \$150,000 of fees and expenses of the underwriter. These expenses are payable by us.

We have agreed to indemnify the underwriter against certain liabilities, including civil liabilities under 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 officers have agreed not to offer, sell, agree to sell, directly or indirectly, or otherwise dispose of any shares of common stock or any securities convertible into or exchangeable for shares of common stock without the prior written consent of the underwriter for a period of 45 days after the date of this prospectus supplement. This 45 day lock-up period will be automatically extended if (1) during the last 17 days of the

lock-up period we issue an earnings release or announce material news or a material event relating to iCAD occurs or (2) prior to the expiration of the lock-up period, we announce that we will release earnings results during the 16 day period following the last day of the lock-up period, in which case the restrictions described in this paragraph will continue to apply until the expiration of the 18 day period beginning on the date of the issuance of the earnings release or the announcement of the material news or the occurrence of such material event. These lock-up agreements provide limited exceptions and their restrictions may be waived at any time by the underwriter.

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To facilitate this offering, the underwriter may engage in transactions that stabilize, maintain or otherwise affect the price of our common stock during and after the offering. Specifically, the underwriter may over-allot or otherwise create a short position in our common stock for its own account by selling more shares of common stock than we have sold to the underwriter. The underwriter may close out any short position by either exercising its option to purchase additional shares or purchasing shares in the open market.

In addition, the underwriter may stabilize or maintain the price of our common stock by bidding for or purchasing shares in the open market and may impose penalty bids. If penalty bids are imposed, selling concessions allowed to broker-dealers participating in this offering are reclaimed if shares previously distributed in this offering are repurchased, whether in connection with stabilization transactions or otherwise. The effect of these transactions may be to stabilize or maintain the market price of our common stock at a level above that which might otherwise prevail in the open market. The imposition of a penalty bid may also affect the price of our common stock to the extent that it discourages resales of our common stock. The magnitude or effect of any stabilization or other transactions is uncertain. These transactions may be effected on the NASDAQ Stock Market or otherwise and, if commenced, may be discontinued at any time.

In connection with this offering, the underwriter may also engage in passive market making transactions in our common stock on the NASDAQ Stock Market. Passive market making consists of displaying bids on the NASDAQ Stock Market limited by the prices of independent market makers and effecting purchases limited by those prices in response to order flow. Rule 103 of Regulation M promulgated by the SEC limits the amount of net purchases that each passive market maker may make and the displayed size of each bid. Passive market making may stabilize the market price of our common stock at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

The underwriter may facilitate the marketing of this offering online directly or through one of its affiliates. In those cases, prospective investors may view offering terms and a prospectus supplement online and place orders online or through their financial advisors.

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LEGAL MATTERS

The validity of the shares of common stock offered by this prospectus supplement and the accompanying prospectus will be passed upon for us by Blank Rome LLP of New York, New York. Certain legal matters relating to the offering of the common stock will be passed upon for the underwriter by Faegre Baker Daniels LLP, Minneapolis, Minnesota.

EXPERTS

The financial statements of iCAD, Inc. and subsidiary as of December 31, 2013 and 2012 and for each of the three years in the period ended December 31, 2013 incorporated by reference in this prospectus supplement have been so incorporated in reliance on the report of BDO USA, LLP, an independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and other reports and information with the SEC under the Securities Exchange Act of 1934, as amended, or the Exchange Act. You may read and copy any of the reports, statements, or other information we file with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549 at prescribed rates. Information on the operation of the Public Reference Room may be obtained by calling the SEC at 1-800-SEC-0330. The SEC maintains a web site at <http://www.sec.gov> that contains reports, proxy statements and other information regarding issuers that file electronically with the SEC. Our SEC File Number for documents we filed under the Exchange Act is 001-09341. Our web site address is www.icadmed.com. We have included our web site address in this document as an inactive textual reference only, and the information contained in, or that can be accessed through, our web site does not constitute part of this prospectus.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference the documents we file with them. This means that we can disclose important information to you in this prospectus supplement by referring you to the documents that contain such information. These incorporated documents contain important business and financial information about us that is not included in or delivered with this prospectus supplement or the accompanying prospectus. The information incorporated by reference is considered to be part of this prospectus supplement and accompanying prospectus, and later information filed with the SEC will update and supersede this information.

We incorporate by reference the documents listed below as well as any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (other than information deemed to have been furnished or not filed in accordance with the SEC rules) from the date of this prospectus supplement and prior to the termination of this offering:

Our Annual Report on Form 10-K for the fiscal year ended December 31, 2013 filed with the SEC on March 3, 2014;

Our Current Reports on Forms 8-K filed with the SEC on February 20, 2014 (solely with respect to Item 5.02 thereto); and

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The description of our common stock contained in our Registration Statements on Form 8-A filed with the SEC and any amendments thereto.

You may request, and we will provide to you at no cost, a copy of these filings by writing or telephoning us at iCAD, Inc., 98 Spit Brook Road, Suite 100, Nashua, New Hampshire 03062, telephone number (603) 882-5200. Attention: Kevin Burns.

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PROSPECTUS

iCAD, INC.

\$75,000,000

Common Stock

Preferred Stock

Warrants

Debt Securities

Units

From time to time, we may offer and sell common stock, preferred stock, warrants or debt securities or any combination of the securities described in this prospectus, either individually, or in units, at prices and on terms described in one or more supplements to this prospectus. The aggregate offering price of the securities offered by this prospectus will not exceed \$75,000,000.

This prospectus provides you with a general description of the securities that we may offer in one or more offerings. Each time we offer securities, we will provide a supplement to this prospectus that will contain more specific information about the terms of that offering. We may also add, update or change in the prospectus supplement any of the information contained in this prospectus. **This prospectus may not be used to sell any of our securities unless accompanied by a prospectus supplement.**

The securities offered by this prospectus may be sold directly by us to investors, through agents designated from time to time or to or through one or more underwriters or dealers or in other manners as set forth under the heading "Plan of Distribution". In addition, each time we offer securities, the supplement to this prospectus applicable to such offering will provide the specific terms of the plan of distribution for such offering and the net proceeds that we expect to receive from such offering.

You should read both this prospectus and the applicable prospectus supplement, as well as any documents incorporated by reference in this prospectus and/or the applicable prospectus supplement, before you make your investment decision.

Our common stock is traded on the Nasdaq Capital Market under the trading symbol ICAD. On September 6, 2011, the last reported sale price of our common stock on the Nasdaq Capital Market was \$0.53 per share.

Investing in our securities involves risks. See the risks and uncertainties described under the heading "Risk Factors" beginning on page 3 of this prospectus, in any applicable prospectus supplement and under similar headings in the other documents that are incorporated by reference into this prospectus.

The aggregate market value of our outstanding common stock held by non-affiliates was approximately \$23,402,373 based on 54,682,075 shares of outstanding common stock, of which 44,155,421 are held by non-affiliates, and a per share price of \$0.53 based on the closing sale price of our common stock on September 6, 2011. We have not offered any securities during the past twelve months pursuant to General Instruction I.B.6. of Form S-3.

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 September 30, 2011

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PROSPECTUS SUMMARY

This summary is a brief discussion of material information contained in, or incorporated by reference into, this prospectus as further described below. This summary does not contain all of the information that you should consider before investing in our securities. We urge you to read carefully this entire prospectus, the documents incorporated by reference into this prospectus and all applicable prospectus supplements before making an investment decision.

About This Prospectus

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 and the accompanying supplement to this prospectus. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or the accompanying prospectus supplement. This prospectus and the accompanying supplement to this prospectus do not constitute an offer to sell or the solicitation of an offer to buy our securities, nor do this prospectus and the accompanying supplement to this prospectus constitute an offer to sell or the solicitation of an offer to buy our 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 and the accompanying prospectus supplement 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 and any accompanying prospectus supplement is delivered or common stock is sold on a later date.

This prospectus is part of a Registration Statement that we filed with the Securities and Exchange Commission, or SEC, using a shelf registration process. Under this shelf registration process, we may, from time to time, issue and sell to the public common stock, preferred stock, warrants or debt securities or any combination of the securities described in this prospectus, either individually, or in units, in one or more offerings up to a total dollar amount of \$75,000,000.

This prospectus provides you with a general description of the securities that we may offer in one or more offerings. Each time we offer securities, we will provide a supplement to this prospectus that will contain more specific information about the terms of that offering. The prospectus supplement may also add, update or change information in this prospectus or in documents incorporated by reference in this prospectus. To the extent that any statement that we make in a prospectus supplement is inconsistent with statements made in this prospectus or in documents incorporated by reference in this prospectus, the statements made or incorporated by reference in this prospectus will be deemed modified or superseded by those made in the prospectus supplement. You should carefully read both this prospectus and any prospectus supplement together with the additional information incorporated by reference into this Registration Statement before buying any common stock in this offering.

The Registration Statement containing this prospectus, including exhibits to the Registration Statement, provides additional information about us and the common stock offered under this prospectus. The Registration Statement can be read at the SEC web site or at the SEC offices mentioned under the heading **Where You Can Find More Information**.

About iCAD, Inc.

Unless the context requires otherwise, reference in this prospectus to **we**, **us**, **our**, **iCAD**, or **Company** refers to iCAD, Inc. and its subsidiaries.

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iCAD is an industry-leading provider of advanced image analysis and workflow solutions that enable radiologists and other healthcare professionals to better serve patients by identifying pathologies and pinpointing cancer earlier. iCAD offers a comprehensive range of high-performance, expandable Computer-Aided Detection (CAD) systems and workflow solutions for mammography (film-based, digital radiography (DR) and computed radiography (CR), Magnetic Resonance Imaging (MRI), and Computed Tomography (CT)). iCAD's solutions aid in the early detection of the most prevalent cancers including breast, prostate and colon cancer. Early detection of cancer is the key to better prognosis, less invasive and lower treatment costs, and higher survival rates. Performed as an adjunct to mammography screening, CAD has quickly become the standard of care in breast cancer detection, helping radiologists improve clinical outcomes while enhancing workflow. Computer-enhanced breast and prostate MRI analysis streamlines case interpretation workflow and generates more robust information for more effective patient treatment. CAD for mammography screening is also reimbursable in the U.S. under federal and most third-party insurance programs.

iCAD's CAD systems include proprietary algorithm and other technology together with standard computer and display equipment. CAD systems for the film-based analog mammography market also include a radiographic film digitizer, either manufactured by us or others for the digitization of film-based medical images.

We intend to apply our core competencies in pattern recognition and algorithm development in disease detection to our future product development efforts. Our focus is on the development and marketing of cancer detection products for disease states where there are established or emerging protocols for screening as a standard of care. We expect to pursue development or acquisition of products for select disease states that demonstrate one or more of the following: it is clinically proven that screening has a significant positive impact on patient outcomes, where there is an opportunity to lower health care costs, where screening is non-invasive or minimally invasive and where public awareness is high. We also intend to pursue opportunities beyond CAD through possible strategic acquisitions as part of our growth strategy, as such we continue to actively evaluate strategic opportunities in adjacent markets that could leverage our opportunities for growth beyond our historic core markets.

We have applied our patented detection technology and algorithms to the development of CAD solutions for use with virtual colonoscopy or CT Colonography (CTC) to improve the detection of colonic polyps. Our pattern recognition and image analysis expertise are readily applicable to colonic polyp detection and we have developed a CTC CAD solution. Virtual colonoscopy (CTC) is a technology that has evolved rapidly in recent years. Based on the results of the National CT Colonography trial, we expect that the market for virtual colonoscopy will grow along with the procedures for early detection of colon cancer. This trial demonstrated that CTC is highly accurate for the detection of intermediate and large polyps and that the accuracy of CTC is similar to a colonoscopy. CT Colonography or CTC is emerging as an alternative imaging procedure for evaluation of the colon. We have developed Veralook[®], a product for computer aided detection of polyps in the colon using CTC and completed the clinical testing of its CTC CAD product in the first quarter of 2009. We filed a 510(k) application with the U.S. Food and Drug Administration, or FDA, in May 2009 seeking FDA clearance to market Veralook in the U.S. and received FDA clearance on August 4, 2010.

The acquisition of Xoft, on December 30, 2010, brings an isotope-free cancer treatment platform technology to the Company's product line. Xoft designs, develops, manufactures, markets and sells electronic brachytherapy (eBx) products for the treatment of breast and other cancers, used in a broad range of clinical settings. The portable Axxent System which delivers electronically controlled radiation therapy directly to cancer sites with minimal radiation exposure to surrounding healthy tissue is FDA-cleared. Electronic Brachytherapy (eBx) is a type of brachytherapy that utilizes a miniaturized high dose rate X-ray source to apply radiation directly to the cancerous site. The goal is to direct the radiation dose to the size and shape of the cancerous area, sparing healthy tissue and organs. The Xoft technology delivers similar clinical dose rates to traditional radio-active systems. Electronic Brachytherapy can be

delivered during an operative procedure and may be used as a primary or secondary modality over a course of days. This technology enables radiation oncology departments in hospitals, clinics and physician offices to perform traditional radiotherapy treatments and offer advanced treatments such as

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Intra-Operative Radiation Therapy (IORT). Current customers for the Xofig[®] system include university research and community hospitals, private and governmental institutions, doctors' offices and cancer care clinics.

We were incorporated under the laws of the State of Delaware in 1984 under the name Howtek, Inc. and changed our name to iCAD, Inc. in June 2002. Our principal executive offices are located at 98 Spit Brook Road, Suite 100, Nashua, NH 03062, and our telephone number is (603) 882-5200.

RISK FACTORS

An investment in our securities involves a high degree of risk. You should consider carefully the risk factors described in our periodic reports filed with the SEC (including the risks, uncertainties and assumptions discussed under the heading "Risk Factors" included in our most recent annual report on Form 10-K, as such may be revised or supplemented prior to the completion of this offering by more recently filed periodic or other reports, each of which is or upon filing will be incorporated herein by reference), which may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future, and those identified in any applicable prospectus supplement, as well as other information in this prospectus and any applicable prospectus supplement and the documents incorporated by reference herein before purchasing any of our securities. Each of these risk factors could adversely affect our business, operating results and financial condition, as well as adversely affect the value of an investment in our securities.

Before making an investment decision, you should carefully consider these risks as well as the other information we include or incorporate by reference in this prospectus, including our consolidated financial statements and the related notes. The risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties of which we are unaware or that we currently deem immaterial may also adversely affect our business operations.

FORWARD-LOOKING STATEMENTS

Certain statements in this Registration Statement or the documents incorporated by reference in this Registration Statement constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of iCAD to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Such factors include, among others, those set forth under the caption "Risk Factors." The words "believe," "expect," "anticipate," "intend," "continue," "demonstrate," "likely," "seek," "estimate," "would," "could," "should" and "plan" and similar expressions identify forward-looking statements. Readers are cautioned not to place undue reliance on any of these forward-looking statements, which speak only as of the date of the statement was made. Except as required by law, iCAD undertakes no obligation to update any forward-looking statement.

All forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by these cautionary statements.

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UNAUDITED PRO FORMA COMBINED CONDENSED FINANCIAL INFORMATION

On December 30, 2010, we completed our acquisition of Xoft, Inc., or Xoft, a privately held company based in California. Xoft designs, develops, manufactures, markets and sells electronic brachytherapy (eBx) products for the treatment of breast and other cancers, used in a broad range of clinical settings. The acquisition was made pursuant to an Agreement and Plan of Merger dated December 15, 2010, by and between us, XAC, Inc., our wholly-owned subsidiary, Xoft and Jeffrey Bird as the representative of the stockholders of Xoft, referred to as the Merger Agreement. Upon the terms of the Merger Agreement, Xoft was merged with and into the XAC, Inc. with XAC, Inc. surviving the merger, referred to as the Merger.

We acquired 100% of the outstanding stock of Xoft in exchange for approximately 8.35 million shares of our common stock and approximately \$1.2 million in cash, for a total consideration at closing of approximately \$12.9 million based on a per share value of \$1.40, the closing price of our common stock on the closing date. We also paid certain transaction expenses of Xoft totaling approximately \$1.0 million which is included in our statement of operations.

Under the Merger Agreement, there is an additional earn-out potential for the sellers that is tied to cumulative net revenue of Xoft products for the three year period ending December 31, 2013, payable at the end of the period. The threshold for earn-out consideration begins at \$50 million of cumulative revenue of Xoft Products (as defined in the Merger Agreement) over the three year period immediately following the closing. The targeted earn-out consideration of \$20 million will occur at \$76 million of cumulative revenue of Xoft Products and the maximum earn-out consideration of \$40 million would be achieved at \$104 million of cumulative revenue of Xoft Products over the three year period. We recorded a contingent consideration liability of \$4.9 million.

At closing, 10% of the cash amount and 10% of the amount of our common stock comprising the merger consideration was placed in escrow. It will remain in escrow for a period of 15 months following the closing of the Merger to secure post-closing indemnification obligations of Xoft stockholders.

The following unaudited pro forma combined condensed financial information gives effect to the Merger using the purchase method of accounting, as required by Accounting Standards Codification 805, Business Combinations. Under this method of accounting, we allocated the purchase price to the fair value of assets acquired, including identified intangible assets and goodwill. The unaudited pro forma combined condensed statements of operations assume that the Merger took place as of January 1, 2010.

The financial information presented in the unaudited pro forma combined condensed financial statements is based on amounts and adjustments that our management believes to be factually supportable. We have made no attempt to include forward looking assumptions in such information.

Certain reclassifications have been made to Xoft's historical presentation to conform to our presentation. These reclassifications do not materially impact the unaudited pro forma condensed consolidated results of operations for the period presented.

The unaudited pro forma adjustments, which are based upon available information and upon certain assumptions that we believe are reasonable, are described in the accompanying notes. We are providing the unaudited pro forma condensed consolidated financial information for informational purposes only. The companies may have performed differently had they been combined during the periods presented. You should not rely on the unaudited pro forma combined condensed financial information as being indicative of the historical results that would have been achieved had the companies actually been combined during the periods presented or the future results that the combined companies will experience. The unaudited pro forma combined condensed statements of operations do not give effect

to any cost savings or operating synergies expected to result from the acquisitions or the costs to achieve such cost savings or operating synergies.

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See the unaudited pro forma combined condensed financial statements included in the Form 8-K/A filed with the Securities and Exchange Commission on March 17, 2011 and Note 2 to our consolidated financial statements for the year ended December 31, 2010 contained in our Form 10-K for such year, each of which are incorporated by reference herein.

Unaudited Pro Forma Combined Condensed Statement of Operations**For the year ended December 31, 2010****(Unaudited)**

(In thousands except for per share data)

| | Historical | | Proforma | Proforma |
|---|-------------------|-------------|--------------------|-----------------|
| | iCAD | Xoft | Adjustments | Combined |
| | | | | Total |
| Total revenue | \$ 24,575 | \$ 5,723 | | \$ 30,298 |
| Total cost of revenue | 3,147 | 6,462 | (2,077)(a) | 8,446 |
| | | | 913(b) | |
| Gross margin | 21,428 | (739) | 2,077 | 21,853 |
| Operating expenses: | | | | |
| Engineering and product development | 6,596 | 2,266 | 1,746(a) | 10,608 |
| Sales, general and administrative | 21,405 | 7,757 | 331(a) | |
| | | | (2,145)(c) | 27,348 |
| Total operating expenses | 28,001 | 10,023 | (68) | 37,956 |
| Loss from operations | (6,573) | (10,762) | 2,145 | (16,104) |
| Interest and other income (expense), net | 348 | (2,216) | 1,647(d) | (221) |
| Loss before provision (benefit) for income taxes | (6,225) | (12,978) | 3,792 | (16,325) |
| Provision (benefit) for income taxes | | | | |
| Net loss | \$ (6,225) | \$ (12,978) | \$ 3,792 | \$ (16,325) |
| Net loss per share: | | | | |
| Basic and diluted | \$ (0.14) | | | \$ (0.31) |
| Weighted average number of shares used in computing loss per share: | | | | |
| Basic and diluted | 45,759 | | 8,349(e) | 54,108 |

See accompanying introduction and notes to unaudited pro forma combined condensed financial statements.

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- (a) Represents the reclassification of expenses recorded in cost of sales to operating expenses.
- (b) Represents amortization of increase in value of acquired identifiable intangible assets of Xoft based upon average estimated useful lives of ten years ($13,700,000/15$ years = \$913,333 per year).
- (c) Represents the elimination of transaction costs related to the acquisition of Xoft
- (d) Reflects the elimination of borrowings by Xoft converted to equity prior to closing and the associated interest expense.
- (e) Reflects the increase in weighted average basic and diluted shares outstanding for the Company's common stock issued in connection with the Merger. Pro forma basic and diluted loss per share was calculated assuming that the 8,348,501 shares of the Company's common stock issued in connection with the Merger were issued at the beginning of the period presented.

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USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds from the sale of our securities offered under this prospectus. Except as described in any prospectus supplement, we currently anticipate using the net proceeds from the sale of our securities offered under this prospectus for making acquisitions of assets, including intellectual property, technology and product lines, businesses or securities, repayment of debt or capital expenditures, working capital and general corporate purposes.

DESCRIPTION OF COMMON STOCK

We are authorized to issue 85,000,000 shares of common stock. As of September 6, 2011, there were 54,682,075 shares of common stock outstanding.

Each share of common stock is entitled to one vote on all matters to be voted on by stockholders. There are no cumulative voting rights in the election of directors, with the result that the holders of more than 50% of the shares voting for the election of directors can elect all of the directors then up for election. The holders of common stock are entitled to receive dividends when, as and if declared by our Board of Directors out of funds legally available therefor. In the event of liquidation, dissolution or winding up of our company, the holders of common stock are entitled to share in all assets remaining, if any, which are available for distribution to them after payment of liabilities and after provision has been made for each class of stock, if any, having preference over the common stock. Holders of shares of common stock have no conversion, preemptive or other subscription rights, and there are no redemption provisions applicable to the common stock. All outstanding shares of common stock are fully paid and nonassessable.

Transfer Agent

The transfer agent and registrar for the common stock is Continental Stock Transfer & Trust Company.

Anti-Takeover Provisions

Our certificate of incorporation authorizes the Board of Directors to issue up to 1,000,000 shares of preferred stock. The preferred stock may be issued in one or more series, the terms of which may be determined at the time of issuance by our Board of Directors, without further action by stockholders, and may include, among other things, voting rights (including the right to vote as a series on particular matters), preferences as to dividends and liquidation, conversion and redemption rights, and sinking fund provisions. Although there are currently no shares of preferred stock outstanding, future holders of preferred stock may have rights superior to our common stock and such rights could also be used to restrict our ability to merge with, or sell our assets to a third party.

We are also subject to the provisions of Section 203 of the Delaware General Corporation Law, which could prevent us from engaging in a business combination with a 15% or greater stockholder for a period of three years from the date such person acquired that status unless appropriate board or stockholder approvals are obtained.

These provisions could deter unsolicited takeovers or delay or prevent changes in our control or management, including transactions in which stockholders might otherwise receive a premium for their shares over the then current market price. These provisions may also limit the ability of stockholders to approve transactions that they may deem to be in their best interests.

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DESCRIPTION OF PREFERRED STOCK

We are authorized to issue 1,000,000 shares of preferred stock. As of September 6, 2011, there were no shares of preferred stock outstanding.

This section describes the general terms of our preferred stock to which any prospectus supplement may relate. A prospectus supplement will describe the terms relating to any preferred stock to be offered by us in greater detail, and may provide information that is different from this prospectus. If the information in the prospectus supplement with respect to the particular preferred stock being offered differs from this prospectus, you should rely on the information in the prospectus supplement. A copy of our certificate of incorporation, as amended, has been incorporated by reference from our filings with the SEC as an exhibit to the registration statement. A certificate of amendment to our certificate of incorporation will specify the terms of the preferred stock being offered, and will be filed or incorporated by reference from a report that we file with the SEC.

Our certificate of incorporation, as amended, authorizes our board of directors to establish one or more series of preferred stock. Unless required by law or by any stock exchange on which our common stock is listed, the authorized shares of preferred stock will be available for issuance without further action by stockholders. Our board of directors is able to determine the designations, powers, and relative rights, privileges, preferences and other terms, including terms relating to dividend rates, redemption rates, liquidation preferences and voting, sinking fund and conversion or other rights on, a series of preferred stock.

Unless the applicable prospectus supplement provides otherwise, the preferred stock will have no preemptive rights to subscribe for any additional securities which may be issued by us in the future. The transfer agent and registrar for the preferred stock and any depository shares will be specified in the applicable prospectus supplement.

The following description of our preferred stock, together with any description of our preferred stock in a prospectus supplement summarizes the material terms and provisions of the preferred stock that we may sell under this prospectus. We urge you to read the applicable prospectus supplement(s) related to the particular series of preferred stock that we sell under this prospectus and to the actual terms and provisions contained in our certificate of incorporation and amended and restated bylaws, each as amended from time to time.

Terms

Our board of directors will fix the rights, preferences, privileges, qualifications and restrictions of the preferred stock of each series that we sell under this prospectus and applicable prospectus supplements in the amendment to our certificate of incorporation relating to that series. We will incorporate by reference into the registration statement of which this prospectus is a part the form of any amendment to our certificate of incorporation that describes the terms of the series of preferred stock we are offering before the issuance of the related series of preferred stock. This description of the preferred stock in the amendment to our certificate of incorporation and any applicable prospectus supplement may include:

the number of shares of preferred stock to be issued and the offering price of the preferred stock;

the title and stated value of the preferred stock;

dividend rights, including dividend rates, periods, or payment dates, or methods of calculation of dividends applicable to the preferred stock;

whether dividends will be cumulative or non-cumulative, and if cumulative the date from which distributions on the preferred stock shall accumulate;

right to convert the preferred stock into a different type of security;

voting rights, if any, attributable to the preferred stock;

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rights and preferences upon our liquidation or winding up of our affairs;

terms of redemption;

preemption rights, if any;

the procedures for any auction and remarketing, if any, for the preferred stock;

the provisions for a sinking fund, if any, for the preferred stock;

any listing of the preferred stock on any securities exchange;

the terms and conditions, if applicable, upon which the preferred stock will be convertible into our common stock, including the conversion price (or manner of calculation thereof);

a discussion of federal income tax considerations applicable to the preferred stock, if material;

the relative ranking and preferences of the preferred stock as to dividend or other distribution rights and rights if we liquidate, dissolve or wind up our affairs;

any limitations on issuance of any series of preferred stock ranking senior to or on a parity with the series of preferred stock being offered as to distribution rights and rights upon the liquidation, dissolution or winding up or our affairs; and

any other specific terms, preferences, rights, limitations or restrictions of the preferred stock.

DESCRIPTION OF WARRANTS

The following description, together with the additional information we may include in any applicable prospectus supplements, summarizes the material terms and provisions of the warrants that we may offer under this prospectus. 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 in more detail in the applicable prospectus supplement. The terms of any warrants offered under a prospectus supplement may differ from the terms described below.

We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from another report that we file with the SEC, the form of warrant agreement, which may include a form of warrant certificate, that describes the terms of the particular series of warrants we are offering before the issuance of the related series of warrants. The following summary of material provisions of the warrants and the warrant agreements

are subject 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 supplements related to the particular series of warrants that we sell under this prospectus, as well as the complete warrant agreements and warrant certificates that contain the terms of the warrants.

General

We will describe in the applicable prospectus supplement the terms relating to warrants being offered including:

the offering price and aggregate number of warrants offered;

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;

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in the case of warrants to purchase common stock or preferred stock, the number of shares of common stock or preferred stock, as the case may be, purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;

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;

federal income tax consequences of holding or exercising the warrants, if material;

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.

Before exercising their warrants, holders of warrants will not have any of the rights of holders of the securities purchasable upon such exercise, including, in the case of warrants to purchase common stock or preferred stock, the right to receive dividends, if any, or payments upon our liquidation, dissolution or winding up of our affairs 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 representing the warrants to be exercised together with specified information, and paying the required amount to the warrant agent in immediately available funds, as provided in the applicable prospectus supplement. We intend to set forth in any warrant agreement and in the applicable prospectus supplement the information that the holder of the warrant will be required to deliver to the warrant agent.

Upon receipt of the required payment and any warrant certificate or other form required for exercise 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 or warrant certificate are exercised, then we will issue a new

warrant or 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.

DESCRIPTION OF DEBT SECURITIES

We may issue debt securities, in one or more series, which may be senior or convertible debt. While the terms we have summarized below we expect will apply generally to any debt securities that we may offer under this prospectus, we will describe the particular terms of any debt securities that we may offer in more detail in the applicable prospectus supplement. The terms of any debt securities offered under a prospectus supplement may differ from the terms described below. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, forms of debt

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securities and/or any indentures containing the terms of the debt securities being offered. Any debt securities which we offer by this prospectus will be exempt under the Trust Indenture Act of 1939, as amended, or the Trust Indenture Act. Therefore, we may not use an indenture (and, thus a trustee) or, if we use an indenture, it may not fully comply with the requirements of the Trust Indenture Act.

The documentation governing the debt securities may provide for an agent to act for and on behalf of the holders of the debt securities. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, supplemental forms of debt securities and/or indentures containing the terms of the debt securities being offered.

The following summaries of material provisions of the debt securities we may issue are subject to, and qualified in their entirety by reference to, all of the provisions of the documentation applicable to a particular series of debt securities. We urge you to read the applicable prospectus supplements that we may offer under this prospectus.

General

We will describe in the applicable prospectus supplement the terms of the debt securities being offered, including:

the title;

the principal amount being offered, and if a series, the total amount authorized and the total amount outstanding;

any limit on the amount that may be issued;

whether or not we will issue the series of debt securities in global form, the terms and who the depository will be;

the maturity date;

the terms of the conversion rights;

the annual interest rate, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;

whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;

the terms of the subordination of any series of subordinated debt;

the place where payments will be payable;

if payment of principal and interest on the debt securities may be paid in our securities rather than, or in addition to cash, and the terms of any such rights;

restrictions on transfer, sale or other assignment, if any;

our right, if any, to defer payment of interest and the maximum length of any such deferral period;

the date, if any, after which, and the price at which, we may, at our option, redeem the series of debt securities pursuant to any optional or provisional redemption provisions and the terms of those redemption provisions;

the date, if any, on which, and the price at which we are obligated, pursuant to any mandatory sinking fund or analogous fund provisions or otherwise, to redeem, or at the holder's option to purchase, the series of debt securities and the currency or currency unit in which the debt securities are payable;

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whether the debt securities will restrict our ability and/or the ability of our subsidiaries to:

incur additional indebtedness;

issue additional securities;

create liens;

pay dividends and make distributions in respect of our capital stock and the capital stock of our subsidiaries;

redeem capital stock;

place restrictions on our subsidiaries' ability to pay dividends, make distributions or transfer assets;

make investments or other restricted payments;

sell or otherwise dispose of assets;

enter into sale-leaseback transactions;

engage in transactions with shareholders and affiliates;

issue or sell stock of our subsidiaries; or

effect a consolidation or merger;

whether the debt securities will require us to maintain any interest coverage, fixed charge, cash flow-based, asset-based or other financial ratios;

a discussion of any material United States federal income tax considerations applicable to the debt securities;

information describing any book-entry features;

provisions for a sinking fund purchase or other analogous fund, if any;

the applicability of the provisions in the debt securities on discharge;

the denominations in which we will issue the series of debt securities, if other than denominations of \$1,000 and any integral multiple thereof;

the currency of payment of debt securities if other than U.S. dollars and the manner of determining the equivalent amount in U.S. dollars; and

any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities, including any events of default or covenants provided with respect to the debt securities, and any terms that may be required by us or advisable under applicable laws or regulations.

Conversion or Exchange Rights

We will set forth in the prospectus supplement the terms on which a series of debt securities may be convertible into or exchangeable for our common stock, preferred stock, other debt securities, warrants or units consisting of one or more of such securities. We will include provisions as to whether conversion or exchange is mandatory, at the option of the holder or at our option. We may include provisions pursuant to which the number of shares of our common stock, preferred stock, other debt securities, warrants or units consisting of one or more of such securities, that the holders of the series of debt securities receive would be subject to adjustment.

Consolidation, Merger or Sale

We do not currently expect our debt securities to contain any covenant that restricts our ability to merge or consolidate, or sell, convey, transfer or otherwise dispose of all or substantially all (i.e. more than 75%) of our

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assets. However, any successor to or acquirer of such assets may be required to assume all of our obligations under the debt securities, as appropriate. If the debt securities are convertible into or exchangeable for our other securities or securities of other entities, the person with whom we consolidate or merge or to whom we sell all or substantially all of our assets may be required to make provisions for the conversion of the debt securities into securities that the holders of the debt securities would have received if they had converted the debt securities before the consolidation, merger or sale.

Events of Default Under the Debt Securities

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities or the debt agreement or indenture governing the debt securities, the following are events of default with respect to any series of debt securities that we may issue:

if we fail to pay interest when due and payable and our failure continues for 90 days and the time for payment has not been extended or deferred;

if we fail to pay the principal, premium or sinking fund payment, if any, when due and payable and the time for payment has not been extended or delayed;

if we fail to observe or perform any other covenant contained in the debt securities, other than a covenant specifically relating to another series of debt securities, and our failure continues for 90 days after we receive notice from the debt securities agent or holders of at least 25% in aggregate principal amount of the outstanding debt securities of the applicable series;

if specified events of bankruptcy, insolvency or reorganization occur; and

any other event of default provided in or pursuant to the applicable agreement or indenture, if any, or prospectus supplement with respect to the debt securities of that series.

The holders of a majority in principal amount of the outstanding debt securities of an affected series may waive any default or event of default with respect to the series and its consequences, except defaults or events of default regarding payment of principal, premium, if any, or interest, unless we have cured the default or event of default in accordance with the form of debt security and/or agreement or indenture. Any waiver shall cure the default or event of default.

The holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to such holders with respect to the debt securities of that series.

Subject to the terms of the debt securities, if an event of default thereunder shall occur and be continuing, the debt securities agent will be under no obligation to exercise any of its rights or powers under such debt securities at the request or direction of any of the holders of the applicable series of debt securities, unless such holders have offered the debt securities agent reasonable indemnity. The holders of a majority in principal amount of the outstanding debt

securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the debt securities agent, or exercising any trust or power conferred on the debt securities agent, with respect to the debt securities of that series, provided that:

the direction so given by the holder is not in conflict with any law or the applicable debt securities; and

the debt securities agent need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

A holder of the debt securities of any series will have the right to institute a proceeding under the debt securities or to appoint a receiver or trustee, or to seek other remedies only if:

the holder has given written notice to the debt securities agent of a continuing event of default with respect to that series;

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the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made written request, and such holders have offered reasonable indemnity to the debt securities agent to institute the proceeding as trustee; and

the debt securities agent does not institute the proceeding, and does not receive from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series other conflicting directions within 90 days after the notice, request and offer.

These limitations do not apply to a suit instituted by a holder of debt securities if we default in the payment of the principal, premium, if any, or interest on, the debt securities.

We may periodically file statements with the debt securities agent regarding our compliance with specified covenants in the documentation regarding such debt securities.

Modification; Waiver

We and the debt securities agent may change the form of debt security and/or indenture without the consent of any holders with respect to specific matters:

to fix any ambiguity, defect or inconsistency in the documentation governing the debt securities;

to comply with the provisions described above under Description of Debt Securities Consolidation, Merger or Sale;

to add to, delete from or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication and delivery of debt securities, as set forth in the documentation governing such debt securities;

to provide for the issuance of and establish the form and terms and conditions of the debt securities of any series as provided under Description of Debt Securities General to establish the form of any certifications required to be furnished pursuant to the terms of any series of debt securities, or to add to the rights of the holders of any series of debt securities;

to evidence and provide for the acceptance of appointment thereunder by a successor debt securities agent;

to provide for uncertificated debt securities in addition to or in place of certificated debt securities and to make all appropriate changes for such purpose;

to add to our covenants new covenants, restrictions, conditions or provisions for the protection of the holders, and to make the occurrence, or the occurrence and the continuance, of a default in any such

additional covenants, restrictions, conditions or provisions an event of default; or

to change anything that does not materially adversely affect the interests of any holder of debt securities of any series.

In addition, the rights of holders of a series of debt securities may be changed by us and the debt securities agent with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding debt securities of each series that is affected. However, unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, we and the debt securities agent may make the following changes only with the consent of each holder of any outstanding debt securities affected:

extending the fixed maturity of the series of debt securities;

reducing the principal amount, reducing the rate of or extending the time of payment of interest, or reducing any premium payable upon the redemption of any debt securities; or

reducing the percentage of debt securities, the holders of which are required to consent to any amendment, supplement, modification or waiver.

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Discharge

The documentation governing the debt securities may provide that we can elect to be discharged from our obligations with respect to one or more series of debt securities, except for specified obligations, including obligations to:

register the transfer or exchange of debt securities of the series;

replace stolen, lost or mutilated debt securities of the series;

maintain paying agencies;

hold monies for payment in trust;

recover excess money held by the debt securities agent;

indemnify the debt securities agent; and

appoint any successor debt securities agent.

In order to exercise our rights to be discharged, we must deposit with the debt securities agent money or government obligations sufficient to pay all the principal of, any premium, if any, and interest on, the debt securities of the series on the dates payments are due.

Form, Exchange and Transfer

We will issue the debt securities of each series only in fully registered form without coupons and, unless we provide otherwise in the applicable prospectus supplement, in denominations of \$1,000 and any integral multiple thereof.

At the option of the holder, subject to the terms of the debt securities set forth in the applicable prospectus supplement, the holder of the debt securities of any series can exchange the debt securities for other debt securities of the same series, in any authorized denomination and of like tenor and aggregate principal amount.

Subject to the terms of the debt securities set forth in the applicable prospectus supplement, holders of the debt securities may present the debt securities for exchange or for registration of transfer, duly endorsed or with the form of transfer endorsed thereon duly executed if so required by us or the security registrar, at the office of the security registrar or at the office of any transfer agent designated by us for this purpose. Unless otherwise provided in the debt securities that the holder presents for transfer or exchange, we will impose no service charge for any registration of transfer or exchange, but we may require payment of any taxes or other governmental charges.

We will name in the applicable prospectus supplement the security registrar, and any transfer agent in addition to the security registrar, that we initially designate for any debt securities. We may at any time designate additional transfer

agents or rescind the designation of any transfer agent or approve a change in the office through which any transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for the debt securities of each series.

If we elect to redeem the debt securities of any series, we will not be required to:

issue, register the transfer of, or exchange any debt securities of that series during a period beginning at the opening of business 15 days before the day of mailing of a notice of redemption of any debt securities that may be selected for redemption and ending at the close of business on the day of the mailing; or

register the transfer of or exchange any debt securities so selected for redemption, in whole or in part, except the unredeemed portion of any debt securities we are redeeming in part.

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Information Concerning the Debt Securities Agent

The debt securities agent, if any, other than during the occurrence and continuance of an event of default under the debt securities, may undertake to perform only those duties as are specifically set forth in the applicable documentation for such debt securities. Upon an event of default under the debt securities, the debt securities agent must use the same degree of care as a prudent person would exercise or use in the conduct of his or her own affairs. Subject to this provision, the debt securities agent is under no obligation to exercise any of the powers given it by the debt securities at the request of any holder of debt securities unless it is offered reasonable security and indemnity against the costs, expenses and liabilities that it might incur.

Payment and Paying Agents

Unless we otherwise indicate in the applicable prospectus supplement, we will make payment of the interest on any debt securities on any interest payment date to the person in whose name the debt securities, or one or more predecessor securities, are registered at the close of business on the regular record date for the interest.

We will pay principal of and any premium and interest on the debt securities of a particular series at the office of the paying agents designated by us, except that unless we otherwise indicate in the applicable prospectus supplement, we will make interest payments by check that we will mail to the holder or by wire transfer to certain holders. We will name in the applicable prospectus supplement any paying agents that we initially designate for the debt securities of a particular series.

All money we pay to a paying agent or the debt securities agent for the payment of the principal of or any premium or interest on any debt securities that remains unclaimed at the end of two years after such principal, premium or interest has become due and payable will be repaid to us, and the holder of the debt security thereafter may look only to us for payment thereof.

Governing Law

The debt securities will be governed by and construed in accordance with the laws of the State of New York.

PLAN OF DISTRIBUTION

We may sell the securities covered by this prospectus from time to time. Registration of our securities covered by this prospectus does not mean, however, that those securities will necessarily be offered or sold.

We may sell the common stock:

to or through one or more underwriters or dealers;

directly to purchasers, through agents, in private or open market transactions; or

through a combination of any of these methods of sale.

We may distribute the securities:

From time to time in one or more transactions at a fixed price or prices, which may be changed from time to time;

at market prices prevailing at the times of sale;

at prices related to such prevailing market prices; or

at negotiated prices.

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We will describe the method of distribution of the securities in the applicable prospectus supplement.

Underwriters, dealers or agents may receive compensation in the form of discounts, concessions or commissions from us or our purchasers (as their agents in connection with the sale of the securities). In addition, underwriters may sell the securities to or through dealers, and those dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters and/or commissions from the purchasers for whom they act as agent. These underwriters, dealers or agents may be considered to be underwriters under the Securities Act of 1933, as amended. As a result, discounts, commissions, or profits on resale received by the underwriters, dealers or agents may be treated as underwriting discounts and commissions. Each applicable prospectus supplement will identify any such underwriter, dealer or agent, and describe any compensation received by them from us. Any initial public offering price and any discounts or concessions allowed or re-allowed or paid to dealers may be changed 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 the relationship.

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 enter into agreements that provide for indemnification against certain civil liabilities, including liabilities under the Securities Act of 1933, as amended, or for contribution with respect to payments made by the underwriters, dealers or agents and to reimburse these persons for certain expenses.

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.

We may grant underwriters who participate in the distribution of the securities an option to purchase additional securities to cover over-allotments, if any, in connection with the distribution. Underwriters, broker dealers or agents and their associates may be customers of, engage in transactions with, or perform services for us in the ordinary course of business for which they receive compensation.

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, or 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 purchase of the securities in the open 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 is 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 these activities at any time.

Any underwriters who are qualified market makers on the NASDAQ Capital Market may engage in passive market making transactions in our common stock on the NASDAQ Capital 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 common stock. 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.

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We make no representation or prediction as to the direction or magnitude of any effect that any of the foregoing activities may have on the price of our common stock or, if applicable, the price for any of our other securities. For a description of these activities, see the information under the heading "Underwriting" or "Plan of Distribution" in the applicable prospectus supplement.

In compliance with the current guidelines of the Financial Industry Regulatory Authority, or FINRA, the maximum compensation 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.

LEGAL MATTERS

The validity of the securities being offered by this prospectus will be passed upon for us by Blank Rome LLP of New York, New York and for any underwriters, dealers or agents by counsel named in the applicable prospectus supplement.

EXPERTS

The financial statements of iCAD, Inc. as of December 31, 2010 and 2009 and for the years then ended incorporated by reference in this prospectus constituting a part of this Registration Statement on Form S-3 have been audited by BDO USA, LLP, an independent registered public accounting firm, to the extent, and for the periods set forth in their report incorporated herein by reference, and are incorporated herein in reliance upon such report given upon the authority of such firm as experts in auditing and accounting.

The audited historical financial statements of Xoft, Inc. included in iCAD Inc.'s Current Report on Form 8-K/A dated December 30, 2010 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, independent accountants, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the informational requirements of the Securities Exchange Act of 1934 and we file reports and other information with the SEC.

You may read and copy any of the reports, statements, or other information we file with the SEC at the SEC's Public Reference Section at 100 F Street, N.E., Washington, D.C. 20549 at prescribed rates. Information on the operation of the Public Reference Room may be obtained by calling the SEC at 1-800-SEC-0330. The SEC maintains a Web site at <http://www.sec.gov> that contains reports, proxy statements and other information regarding issuers that file electronically with the SEC. Our SEC File Number for documents we filed under the Securities Exchange Act of 1934 is 001-09341.

Our web site address is icadmed.com. We have included our web site address in this document as an inactive textual reference only, and the information contained in, or that can be accessed through, our web site does not constitute part of this prospectus.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

This prospectus constitutes a part of a registration statement on Form S-3 that we have filed with the SEC under the Securities Act of 1933, as amended. This prospectus does not contain all of the information set forth in the registration statement, certain parts of which are omitted in accordance with the rules and regulations of the

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SEC. For further information about us and our securities we refer you to the registration statement and the accompanying exhibits and schedules. The registration statement may be inspected at the Public Reference Room maintained by the SEC at the address set forth in the first paragraph of this section. Statements contained in this prospectus regarding the contents of any contract or any other document filed as an exhibit are not necessarily complete. In each instance, reference is made to the copy of such contract or document filed as an exhibit to the registration statement, and each statement is qualified in all respects by that reference.

The SEC allows us to incorporate by reference the information we file with them. This means that we can disclose important information to you by referring you to other documents that are legally considered to be part of this prospectus, and later information that we file with the SEC will automatically update and supersede the information in this prospectus and the documents listed below. We incorporate by reference the documents listed below, and any future filings made by us with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 until we sell all the shares.

1. Our Annual Report on Form 10-K for the fiscal year ended December 31, 2010;
2. Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2011;
3. Our Quarterly Report on Form 10-Q for the quarter ended June 30, 2011;
4. Our Current Report on Form 8-K filed with the SEC on January 5, 2011;
5. Our Current Report on Form 8-K filed with the SEC on March 8, 2011;
6. Our Current Report on Form 8-K/A filed with the SEC on March 17, 2011;
7. Our Current Report on Form 8-K filed with the SEC on April 27, 2011;
8. Our Current Report on Form 8-K filed with the SEC on July 21, 2011;
9. Our Current Report on Form 8-K filed with the SEC on July 27, 2011;
10. The description of our common stock contained in our Registration Statements on Form 8-A filed with the SEC and any amendments thereto;
- 11.

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All documents filed by us pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 subsequent to the date of this prospectus and prior to the termination of this offering, except any Compensation Committee Report on Executive Compensation included in any Proxy Statement filed by us pursuant to Section 14 of the Securities Exchange Act of 1934 (information furnished under either Item 2.02 or Item 7.01 of any Current Report on Form 8-K shall not be deemed incorporated by reference); and

12. All documents filed by us pursuant to Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 subsequent to the date of the initial filing of this Registration Statement and prior to the effectiveness of this registration statement, except the Compensation Committee Report on Executive Compensation included in any Proxy Statement filed by us pursuant to Section 14 of the Exchange Act (information furnished under either Item 2.02 or Item 7.01 of any Current Report on Form 8-K shall not be deemed incorporated by reference).

You may request and we will provide a copy of these filings to you at no cost, by writing or telephoning us at iCAD, Inc., 98 Spit Brook Road, Suite 100, Nashua, New Hampshire 03062, telephone number (603) 882-5200. Attention: Kevin C. Burns.

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2,400,000 Shares of Common Stock

iCAD, Inc.

PROSPECTUS SUPPLEMENT

Craig-Hallum Capital Group

March 12, 2014