

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

**PRE-EFFECTIVE AMENDMENT NO. 2 TO
FORM S-1**

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

XTANT MEDICAL HOLDINGS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

3841
(Primary Standard Industrial
Classification Code Number)

20-5313323
(I.R.S. Employer
Identification Number)

**664 Cruiser Lane
Belgrade, Montana 59714
(406) 388-0480**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**Carl O'Connell
Chief Executive Officer
Xtant Medical Holdings, Inc.
664 Cruiser Lane
Belgrade, Montana 59714
(406) 388-0480**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:
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Minneapolis, Minnesota 55402
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Approximate date of commencement of proposed sale to the public:

From time to time after this registration statement becomes effective as determined by the selling stockholders.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration for the same offering.

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

Large accelerated filer
Non-accelerated filer
(Do not check if a smaller reporting company)

Accelerated filer
Smaller reporting company
Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

The registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this preliminary prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities nor does it seek an offer to buy these securities in any jurisdiction where the offer or sale of these securities is not permitted.

SUBJECT TO COMPLETION, DATED MAY 30, 2018

PRELIMINARY PROSPECTUS

11,536,773 Shares



Common Stock

This prospectus relates to the resale, from time to time, of up to an aggregate of 11,536,773 shares of common stock of Xtant Medical Holdings, Inc. by the selling stockholders named in this prospectus, including their donees, pledgees, transferees, assignees or other successors-in-interest. The selling stockholders acquired these shares from us upon the (i) exchange of outstanding convertible senior notes, in the aggregate principal amount of \$1.627 million, into a total of 189,645 shares of common stock on January 17, 2018, (ii) exchange of outstanding convertible senior notes, in the aggregate principal amount of \$70.238 million, into a total of 10,401,309 shares of common stock on February 14, 2018, and/or (iii) private placement of 945,819 shares of common stock on February 14, 2018. Unless otherwise provided, all share numbers and share prices in this prospectus reflect a 1-for-12 reverse split of our common stock effected on February 14, 2018. We issued the shares to the selling stockholders pursuant to an exemption from the registration requirements of the Securities Act of 1933, as amended.

We are not selling any shares of our common stock under this prospectus and will not receive any proceeds from sales of the shares offered by the selling stockholders, although we will incur expenses in connection with the offering. The registration of the resale of the shares of common stock covered by this prospectus does not necessarily mean that any of the shares will be offered or sold by the selling stockholders. The timing and amount of any sales are within the sole discretion of the selling stockholders.

The shares of common stock offered under this prospectus may be sold by the selling stockholders through public or private transactions, on or off the NYSE American, at prevailing market prices or at privately negotiated prices. For more information on the times and manner in which the selling stockholders may sell the shares of common stock under this prospectus, please see the section entitled "*Plan of Distribution*," beginning on page 22 of this prospectus.

Our shares of common stock are listed on the NYSE American under the symbol "XTNT." On May 29, 2018, the last reported sale price of our shares of common stock on the NYSE American was \$5.91 per share.

Investing in our shares of common stock involves a high degree of risk. We refer you to the section entitled "*Risk Factors*" on page 4 of this prospectus, as well as those risk factors described in any applicable prospectus supplement and in the documents we incorporate by reference.

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 _____, 2018.

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We are responsible for the information contained and incorporated by reference in this prospectus and any accompanying prospectus supplement we prepare or authorize. Neither we nor the selling stockholders have authorized anyone to provide any information or to make any representations other than those contained in or incorporated by reference into this prospectus and any accompanying prospectus supplement we have prepared. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus and any accompanying prospectus supplement are an offer to sell only the shares offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus and any accompanying prospectus supplement is current only as of the date of the applicable document. 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 the information contained in this prospectus and in any accompanying prospectus supplement, including the documents incorporated by reference herein or therein, before making your investment decision.

For investors outside the United States: we have not, and the selling stockholders have not, taken any action to permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offer and sale of the common stock and the distribution of this prospectus outside the United States.

ABOUT THIS PROSPECTUS

This prospectus is a part of a shelf registration statement on Form S-1 that we filed with the U.S. Securities and Exchange Commission (SEC), under the Securities Act of 1933, as amended (Securities Act), using a “shelf” registration process. Under this shelf registration process, the selling stockholders named in this prospectus may offer or sell shares of common stock in one or more offerings from time to time. Each time any selling stockholder named in this prospectus (or in any supplement to this prospectus) sells shares of common stock under the registration statement of which this prospectus is a part, such selling stockholder must provide a copy of this prospectus and any applicable prospectus supplement, to a potential purchaser, as required by law.

In certain circumstances we may provide a prospectus supplement that may add, update or change information contained in this prospectus. Any statement that we make in this prospectus will be modified or superseded by any inconsistent statement made by us in a prospectus supplement. You should read both this prospectus and any prospectus supplement, including all documents incorporated herein or therein by reference, together with additional information described under “*Where You Can Find Additional Information*” and “*Incorporation of Certain Documents by Reference*.”

Neither we, nor the selling stockholders, have 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. Neither we nor any of the selling stockholders will make an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus and any prospectus supplement is accurate as of the date on its respective cover, and that any information incorporated by reference is accurate only as of the date of the document incorporated by reference, unless we indicate otherwise. Our business, financial condition, results of operations and prospects may have changed since those dates.

Unless otherwise indicated, information contained in this prospectus concerning our industry and the markets in which we operate, including our general expectations and market position, market opportunity and market share, is based on information from our own management estimates and research, as well as from industry and general publications and research, surveys and studies conducted by third parties. Management estimates are derived from publicly available information, our knowledge of our industry and assumptions based on such information and knowledge, which we believe to be reasonable. In addition, assumptions and estimates of our and our industry’s future performance are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described in “*Risk Factors*.” These and other factors could cause our future performance to differ materially from our assumptions and estimates. See “*Cautionary Note Regarding Forward-Looking Statements*.”

Solely for convenience, trademarks and trade names referred to in this prospectus may appear without the ® and ™ symbols, but those references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights, or that the applicable owner will not assert its rights, to these trademarks and tradenames.

Unless the context otherwise indicates, the terms “Xtant,” “XTNT,” “Company,” “we,” “us,” and “our” as used in this prospectus refer to Xtant Medical Holdings, Inc. and our subsidiaries, and the term “shares of common stock” refers to our common stock, par value \$0.000001 per share. The phrase “this prospectus” refers to this prospectus and any applicable prospectus supplement, unless the context otherwise requires.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference in this prospectus and any prospectus supplement contain “forward-looking statements” that involve risks and uncertainties, as well as assumptions that, if they never materialize or prove incorrect, could cause our results to differ materially from those expressed or implied by such forward-looking statements. The statements contained in this prospectus and the documents incorporated by reference in this prospectus and any prospectus supplement that are not purely historical are “forward-looking statements” within the meaning of Section 27A of the Securities Act. Forward-looking statements are identified by the use of words such as, but not limited to, “anticipate,” “believe,” “continue,” “could,” “estimate,” “prospects,” “forecasts,” “expect,” “intend,” “may,” “will,” “plan,” “target,” and similar expressions or variations intended to identify forward-looking statements. These statements are based on the beliefs and assumptions of our management based on information currently available to management. Such forward-looking statements are subject to risks, uncertainties and other important factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, factors discussed in the section entitled “*Risk Factors*” in this prospectus and the risk factors and cautionary statements described in other documents that we file from time to time with the SEC, specifically under “*Risk Factors*,” including the risks described under “*Part I—Item 1A. Risk Factors*” beginning on page 13 of our Annual Report on Form 10-K for the fiscal year ended December 31, 2017, which is on file with the SEC and is incorporated herein by reference, any amendment or update thereto reflected in subsequent filings with the SEC, including without limitation our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2018, and all other annual, quarterly and other reports that we file with the SEC after the date of this prospectus and that also are incorporated herein by reference.

By way of example and without implied limitation, such risks and uncertainties include:

- our ability to comply with the covenants in our Amended and Restated Credit Agreement;
- our ability to maintain sufficient liquidity to fund our operations;
- our ability to obtain financing on reasonable terms;
- our ability to increase revenue;
- the ability of our sales force to achieve expected results;
- our ability to remain competitive;
- our ability to comply with government regulations;
- our ability to innovate and develop new products;
- our ability to obtain donor cadavers for our products;
- our ability to engage and retain qualified technical personnel and members of our management team;
- the availability of our facilities;
- the availability of government and third-party coverage and reimbursement for our products;
- our ability to obtain regulatory approvals and remain accredited with the American Association of Tissue Banks;
- our ability to successfully integrate future business combinations or acquisitions;

- our ability to use our net operating loss carry-forwards to offset future taxable income;
- our ability to deduct all or a portion of the interest payments on our indebtedness for U.S. Federal income tax purposes;
- our ability to service our debt;
- the effect of product liability claims and other litigation to which we may be subjected;
- the effect of product recalls and defects;
- timing and results of clinical studies; and
- our ability to obtain and protect our intellectual property and proprietary rights and operate without infringing the intellectual property rights of others.

For more information regarding these and other uncertainties and factors that could cause our actual results to differ materially from what we have anticipated in our forward-looking statements or otherwise could materially adversely affect our business, financial condition, or operating results, see “*Part I. Item 1A. Risk Factors*” of our most recent Annual Report on Form 10-K for the fiscal year ended December 31, 2017, as updated by our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2018. The risks and uncertainties described above and in “*Part I. Item 1A. Risk Factors*” of our most recent Annual Report on Form 10-K for the fiscal year ended December 31, 2017, as updated by our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2018, are not exclusive and further information concerning us and our business, including factors that potentially could materially affect our financial results or condition, may emerge from time to time. We assume no obligation to update, amend, or clarify forward-looking statements to reflect actual results or changes in factors or assumptions affecting such forward-looking statements. We advise you, however, to consult any further disclosures we make on related subjects in our future Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K we file with or furnish to the SEC.

PROSPECTUS SUMMARY

This summary highlights certain information about us, this offering and selected information contained in the prospectus. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our common stock. For a more complete understanding of our company and this offering, we encourage you to read and consider the more detailed information included or incorporated by reference in this prospectus, including “*Risk Factors*” and the financial statements and related notes. See “*Where You Can Find Additional Information*” and “*Incorporation of Certain Documents by Reference*.”

About Xtant Medical Holdings, Inc.

Xtant Medical Holdings, Inc. develops, manufactures and markets regenerative medicine products and medical devices for domestic and international markets. Our products serve the specialized needs of orthopedic and neurological surgeons, including orthobiologics for the promotion of bone healing, implants and instrumentation for the treatment of spinal disease, tissue grafts for the treatment of orthopedic disorders, and biologics to promote healing following cranial, and foot and ankle surgeries. We believe the following competitive strengths will be key drivers of our future growth:

Portfolio of Proprietary Technologies: Xtant has developed a comprehensive portfolio of products that address a broad array of spinal pathologies, anatomies and surgical approaches in the complex spine and minimally invasive surgery (MIS) markets. To protect company innovative technologies and techniques, we maintain our intellectual property portfolio, with over 100 issued patents globally and over 40 patent applications pending.

Customer Focus: Responding quickly and efficiently to the needs of patients, surgeons and hospitals is central to our corporate culture and critical to our future success. Our supply chain and customer service teams make sure that the right product and instrumentation is in the right place at the right time. Through such vertically integrated processes, our focus is to meet the changing needs of our customers.

Multi-channel Distribution Network: Xtant is building a hybrid sales and distribution function calling on Orthopedic Surgeons, Neuro Surgeons, their staff and the hospital administrators that support them. Approximately 420 field agents and distributors in the United States represent some or all of our products. Our distribution channel consists of multiple sub-channels including direct sales, consignment agents, reseller distributors, and private label distributors and technology licensees.

Our Recent Restructuring

On January 11, 2018, we entered into a Restructuring and Exchange Agreement (Restructuring Agreement) with the selling stockholders named in this prospectus, which constituted all of the holders of our outstanding 6% convertible unsecured notes due in 2021 (Notes). Pursuant to the terms of the Restructuring Agreement, on January 17, 2018, ROS Acquisition Offshore LP (ROS) and Royalty Opportunities II, LP (Royalty Opportunities) converted certain Notes issued to them in January 2017 in the aggregate principal amount of \$1.627 million, plus accrued and unpaid interest, at the \$0.7589 per share conversion price originally provided thereunder, into 2,275,745 shares of our common stock (or approximately 189,645 shares of our common stock after giving effect to the 1-for-12 reverse stock split). On February 14, 2018, following approval by our stockholders and after completion of the 1-for-12 reverse stock split, the remaining \$70.238 million aggregate principal amount of the Notes held by the selling stockholders, plus accrued and unpaid interest, was exchanged for newly-issued shares of our common stock at an exchange rate of 138.8889 shares per \$1,000 principal amount of Notes, for an exchange price of \$7.20 per share (or \$0.60 per share on a pre-split basis). Such remaining Notes were exchanged for approximately 10.4 million newly-issued shares of our common stock. Furthermore, on February 14, 2018, ROS and Royalty Opportunities purchased from us in a private placement an aggregate of \$6,809,896 in shares of our common stock (945,819 shares) at a price per share of \$7.20.

Immediately following consummation of the restructuring, on February 14, 2018, ROS and Royalty Opportunities collectively owned approximately 70.4% of our outstanding common stock and all of the selling stockholders named in this prospectus, including ROS and Royalty Opportunities, collectively owned approximately 88.5% of our outstanding common stock.

Pursuant to the terms of the Restructuring Agreement, we commenced a rights offering on April 27, 2018 to allow our stockholders as of the April 27, 2018 record date to purchase up to an aggregate of 1,137,515 shares of our common stock at a subscription price of \$7.20 per share. The rights offering is currently scheduled to expire on June 18, 2018.

The primary purposes of our entry into the Restructuring Agreement and our rights offering are to reform our capital structure, meet our liquidity needs, reposition our Company for long-term growth, and regain compliance with NYSE American LLC (formerly the NYSE MKT) listing standards. In conjunction with the consummation of the restructuring, we regained compliance with NYSE American listing standards on February 15, 2018. Stockholder approval was required under Sections 713(a) and 713(b) of the NYSE American Company Guide to complete the restructuring, which we obtained at a special meeting of stockholders held on February 13, 2018. At that meeting, our stockholders elected the following new directors to serve until the 2018 annual meeting of stockholders or until their respective successors have been duly elected and qualified:

John K. Bakewell
Robert McNamara

Michael Eggenberg
Jeffrey Peters

Michael Mainelli
Matthew Rizzo

Since ROS and Royalty Opportunities control a majority of the combined voting power of all classes of our outstanding voting stock, we are a “controlled company” within the meaning of the NYSE American corporate governance standards. Under the NYSE American rules, a company of which more than 50% of the voting power is held by another person or group of persons acting together is a controlled company and may elect not to comply with certain NYSE American corporate governance requirements, including the requirements that:

- a majority of the board of directors consist of independent directors;
- the board has a nomination and governance committee composed entirely of independent directors with a written charter addressing the committee’s purpose and responsibilities; and
- the board has a compensation committee composed entirely of independent directors with a written charter addressing the committee’s purpose and responsibilities.

We currently rely on NYSE American’s controlled company exemptions and do not have a majority independent board of directors, an independent nomination and governance committee or an independent compensation committee.

Corporate Information

We are a Delaware corporation. Our principal executive offices are located at 664 Cruiser Lane, Belgrade, Montana 59714. Our telephone number at this address is (406) 388-0480. Our corporate website is located at www.xtantmedical.com. The information contained on our website or connected to our website is not incorporated by reference into and should not be considered part of this prospectus.

THE OFFERING

Common stock to be offered by the selling stockholders:	Up to 11,536,773 shares
Common stock to be outstanding after the offering:	13,077,468 shares (based on 13,077,468 shares outstanding as of May 29, 2018)
Use of proceeds:	We will not receive any proceeds from the sale of shares in this offering. See “ <i>Use of Proceeds.</i> ”
Risk factors:	You should read the “ <i>Risk Factors</i> ” section included in this prospectus beginning on page 4 and the “ <i>Risk Factors</i> ” sections of the documents incorporated by reference in this prospectus for a discussion of factors to consider carefully before deciding to invest in shares of our common stock.
Stock exchange listing:	Our common stock is listed on NYSE American under the symbol “XTNT.” See “ <i>Market Price of our Common Stock</i> ” on page 10.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should consider carefully the risks and uncertainties described below and in the section entitled “Risk Factors” contained in our most recent and any of our subsequent annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K filed with the SEC, which are incorporated by reference in this prospectus in their entirety, before deciding whether to purchase any of our common stock. The risks and uncertainties incorporated by reference into this prospectus and described below are not the only ones we face. Additional risks and uncertainties not currently known to us, or that we currently view as immaterial, may also impair our business. If any of the risks or uncertainties described below, in our SEC filings or any additional risks and uncertainties actually occur, our business, financial condition, results of operations and cash flow could be materially and adversely affected. In that case, the trading price of our common stock could decline and you might lose all or part of your investment.

Risks Related to this Offering and Our Common Stock

Sales of shares in connection with this offering may cause the market price of our common stock to decline.

In connection with our recent restructuring, we entered into a Registration Rights Agreement with the selling stockholders pursuant to which we agreed to register for resale with the SEC the shares of common stock issued to the selling stockholders in exchange for their convertible senior notes and/or in our private placement. The registration statement of which this prospectus is a part has been filed to satisfy this obligation. Upon the effectiveness of the registration statement, the shares we sold in exchange for their convertible senior notes and/or in our private placement may be freely sold in the open market. The sale of a significant amount of these shares of common stock in the open market, or the perception that these sales may occur, could cause the market price of our common stock to decline or become highly volatile.

Sales by us of a substantial number of shares of our common stock in the public market, or the perception that such sales may occur, could have an adverse impact on the market price of our common stock.

Sales of substantial amounts of our common stock by us, announcements of the proposed sales of substantial amounts of our common stock or the perception that substantial sales may be made, could cause the market price of our common stock to decline. We likely will from time to time issue additional shares of our common stock or securities convertible into or exchangeable for our common stock in offerings to raise additional capital, or issue shares of common stock upon the exercise of warrants or options, or in connection with acquisitions or corporate alliances. We also plan to issue additional shares to our employees, directors or consultants in connection with their services to us. Due to these factors, sales of a substantial number of shares of our common stock in the public market could occur at any time and could depress the market price of our common stock.

The market price of our common stock is extremely volatile, which may affect our ability to raise capital in the future and may subject the value of your investment to sudden decreases.

The market price for our common stock historically has been highly volatile. Fluctuations in the trading price or liquidity of our common stock may harm the value of your investment in our common stock. Factors that may have a significant impact on the market price and marketability of our common stock include:

- regulatory actions with respect to our products or our competitors’ products;
- actual or anticipated changes in our growth rate relative to our competitors;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures, collaborations or capital commitments;
- the success of competitive products or technologies;

- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our products;
- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts;
- variations in our financial results or those of companies that are perceived to be similar to us;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- share price and volume fluctuations attributable to inconsistent trading volume levels of our shares;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us, our insiders or our other stockholders;
- halting or suspension of trading in, or delisting of, our common stock by the NYSE American;
- market conditions in our core business sectors; and
- general economic, industry and market conditions.

In the past, following periods of volatility in the market price of a company's securities, securities class action litigation has often been instituted. These lawsuits often seek unspecified damages, and as with any litigation proceeding, one cannot predict with certainty the eventual outcome of pending litigation. Furthermore, we may have to incur substantial expenses in connection with any such lawsuits and our management's attention and resources could be diverted from operating our business as we respond to any such litigation. We maintain insurance to cover these risks for us and our directors and officers, but our insurance is subject to high deductibles to reduce premium expense, and there is no guarantee that the insurance will cover any specific claim, or that it will be adequate to cover all potential liabilities and damages.

Shares of common stock are equity securities and are subordinate to any indebtedness.

Shares of our common stock are common equity interests. This means that our common stock will rank junior to any outstanding shares of our preferred stock that we may issue in the future or to our current credit facility and any future indebtedness we may incur and to all creditor claims and other non-equity claims against us and our assets available to satisfy claims on us, including claims in a bankruptcy or similar proceeding.

Additionally, unlike indebtedness, where principal and interest customarily are payable on specified due dates, in the case of our common stock, (i) dividends are payable only when and if declared by our board of directors or a duly authorized committee of our board of directors, and (ii) as a corporation, we are restricted to making dividend payments and redemption payments out of legally available assets. We have never paid a dividend on our common stock and have no current intention to pay dividends in the future. Our Amended and Restated Credit Agreement precludes us from paying dividends. Furthermore, our common stock places no restrictions on our business or operations or on our ability to incur indebtedness or engage in any transactions, subject only to the voting rights available to stockholders generally.

You may experience future dilution as a result of future equity offerings.

In order to raise additional capital for general corporate purposes, in the future we may offer additional shares of our common stock or securities convertible into or exchangeable for our common stock, which may be at prices lower than the current price per share of our common stock. In addition, investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by purchasers of shares offered hereby, investors in prior offerings or shares purchased in the open market.

Our stock ownership and organizational documents make a takeover of our Company more difficult, which may prevent certain changes in control and limit the market price of our common stock.

Immediately following our recent restructuring, on February 14, 2018, ROS and Royalty Opportunities collectively owned approximately 70.4% of our outstanding common stock. In addition, under the terms of an Investor Rights Agreement to which we, ROS, Royalty Opportunities and certain other stockholders are a party, for so long as ROS and Royalty Opportunities continue to beneficially own at least 40% or more of our common stock, they will be permitted to nominate a majority of the members of our board of directors and designate the chairperson of the board. If ROS and Royalty Opportunities are unable to maintain this ownership threshold, the Investor Rights Agreement contemplates a reduction of nomination rights commensurate with their ownership interests. Therefore, they will continue to have control or significant influence over our management and affairs. For so long as ROS and Royalty Opportunities are significant stockholders and have board designees, they and their affiliates may exercise significant influence over our management and affairs, including influence beyond what is expressly described under the restructuring documents. ROS and Royalty Opportunities and their respective affiliates will be able to determine all matters requiring stockholder approval. This high concentration of stock ownership may directly or indirectly deter hostile takeovers, delay or prevent changes in control or changes in management.

Our Amended and Restated Certificate of Incorporation and Second Amended and Restated Bylaws contain provisions that may have the effect of deterring or delaying attempts by our stockholders to remove or replace management, engage in proxy contests and effect changes in control. These provisions include:

- the ability of our board of directors to create and issue preferred stock without stockholder action;
- the authority for our board of directors to issue without stockholder approval up to the number of shares of common stock authorized in our Amended and Restated Certificate of Incorporation, that, if issued, would dilute the ownership of our stockholders;
- the advance notice requirement for director nominations or for proposals that can be acted upon at stockholder meetings;
- the limitation on who may call a special meeting of stockholders; and
- the prohibition on stockholders accumulating their votes for the election of directors.

These provisions also could discourage proxy contests and make it more difficult for you and other stockholders to elect directors and take other corporate actions. The existence of these provisions could limit the price that investors might be willing to pay in the future for shares of our common stock. Some provisions in our Amended and Restated Certificate of Incorporation and Second Amended and Restated Bylaws may deter third parties from acquiring us, which may limit the market price of our common stock.

We have not paid dividends in the past and do not expect to pay dividends in the future, and any return on investment may be limited to the value of our common stock.

We have never paid dividends on our common stock and do not anticipate paying dividends on our common stock in the foreseeable future. The payment of dividends on our common stock will depend on our earnings, financial condition and other business and economic factors affecting us at such time as our board of directors may consider relevant. Our Amended and Restated Credit Agreement precludes us from paying dividends. If we do not pay dividends, our common stock may be less valuable because a return on your investment will only occur if our stock price appreciates.

If securities analysts stop publishing research or reports about us or our business, or if they downgrade our common stock, the trading volume and market price of our common stock could decline.

The market for our common stock relies in part on the research and reports that industry or financial analysts publish about us or our business. We do not control these analysts. If any analyst who covers us downgrades our stock or lowers its future stock price targets or estimates of our operating results, our stock price could decline rapidly. Furthermore, if any analyst ceases to cover our Company, we could lose visibility in the market. Each of these events could, in turn, cause our trading volume and the market price of our common stock to decline.

We could issue “blank check” preferred stock without stockholder approval with the effect of diluting interests of then-current stockholders and impairing their voting rights, and provisions in our charter documents and under Delaware law could discourage a takeover that stockholders may consider favorable.

Our Amended and Restated Certificate of Incorporation provides for the authorization to issue up to 10,000,000 shares of “blank check” preferred stock with designations, rights and preferences as may be determined from time to time by our board of directors. Our board of directors is empowered, without stockholder approval, to issue one or more series of preferred stock with dividend, liquidation, conversion, voting or other rights which could dilute the interest of, or impair the voting power of, our common stockholders. The issuance of a series of preferred stock could be used as a method of discouraging, delaying or preventing a change in control. For example, it would be possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of our company. In addition, advanced notice is required prior to stockholder proposals, which might further delay a change of control.

Our inability to comply with the continued listing requirements of the NYSE American could result in our common stock being delisted, which could affect its market price and liquidity and reduce our ability to raise capital.

We are required to meet certain qualitative and financial tests to maintain the listing of our common stock on the NYSE American. If we do not maintain compliance with the continued listing requirements for the NYSE American within specified periods and subject to permitted extensions, our common stock may be recommended for delisting (subject to any appeal we would file). On February 15, 2018, we regained compliance with these continued listing requirements as a result of our restructuring. No assurance can be provided that we will continue to comply with these continued listing requirements. If our common stock were delisted, it could be more difficult to buy or sell our common stock and to obtain accurate quotations, and the price of our stock could suffer a material decline. Delisting would also impair our ability to raise capital.

Risks Related to our Recent Restructuring

ROS and Royalty Opportunities have significant influence over our Company which could make it impossible for the public stockholders to influence the affairs of our Company.

Immediately following our recent restructuring, on February 14, 2018, ROS and Royalty Opportunities collectively owned approximately 70.4% of our outstanding common stock. Our existing non-Noteholder stockholders were significantly diluted, from an ownership standpoint, as a result of the restructuring. In addition, under the terms of an Investor Rights Agreement to which we, ROS, Royalty Opportunities and certain other stockholders are a party, for so long as ROS and Royalty Opportunities continue to beneficially own at least 40% or more of our common stock, they will be permitted to nominate a majority of the members of our board of directors and designate the chairperson of the board. If ROS and Royalty Opportunities are unable to maintain this ownership threshold, the Investor Rights Agreement contemplates a reduction of nomination rights commensurate with their ownership interests. Therefore, they will continue to have control or significant influence over our management and affairs. For so long as ROS and Royalty Opportunities are significant stockholders and have board designees, they and their affiliates may exercise significant influence over our management and affairs, including influence beyond what is expressly described under the restructuring documents. ROS and Royalty Opportunities and their respective affiliates will be able to determine all matters requiring stockholder approval, regardless of whether or not other stockholders believe that a potential transaction is in their own best interests. In any of these matters, the interests of ROS and Royalty Opportunities and their respective affiliates may differ or conflict with your interests.

This high concentration of stock ownership may also directly or indirectly deter hostile takeovers, delay or prevent changes in control or changes in management, or limit the ability of our other stockholders to approve transactions that they may deem to be in our best interests. Additionally, the trading price of our common stock may be adversely effected to the extent investors perceive a disadvantage in owning stock of a company with a significant controlling stockholder.

As a result of our recent restructuring, we are a “controlled company.”

As a result of our recent restructuring, we are a “controlled company” within the meaning of the corporate governance standards of the NYSE American. Under the rules of the NYSE American, a company of which more than 50% of the outstanding voting power is held by an individual, group or another company is a “controlled company” and may elect not to comply with certain stock exchange corporate governance requirements, including the requirement that a majority of the board of directors consists of independent directors and the requirement that a listed company have a nominating and governance committee and a compensation committee that is composed entirely of independent directors. As a controlled company, we are relying on NYSE American’s controlled company exemptions and do not have a majority independent board of directors, an independent nomination and governance committee or an independent compensation committee.

The reverse stock split may not have the intended benefits.

Following approval by our stockholders and effective as of 5:00 p.m. Eastern Time on February 13, 2018, we implemented a reverse split of our common stock with a ratio of 1-to-12. We cannot predict whether the reverse stock split will increase the market price for our common stock on a sustained basis. The history of similar stock splits for companies in like circumstances is varied, and we cannot predict whether:

- the reverse stock split will result in a sustained price per share that will attract brokers and investors who do not trade in lower priced stocks;
- the reverse stock split will result in a price per share that will increase our ability to attract and retain employees and other service providers;
- the market price per share will remain at a level in excess of the minimum bid price as required for continued listing on NYSE American; or

- that, even if the reverse stock split does increase the market price of our common stock on a sustained basis, we will otherwise meet the requirements of NYSE American and be able to maintain our listing.

We may not realize the intended benefits of our recent restructuring.

We believe that entering into the Restructuring Agreement and our recent restructuring was a significant step toward resolving our historical lack of cash, substantial doubt about our ability to continue as a going concern and enhancing our ability to finance operations and expansion. However, there can be no guarantee that we will realize the intended benefits of the restructuring immediately, if at all. The restructuring involved a significant transition at the management and board of director levels. This transition could take longer, and require greater resources and management and the board of directors attention, than anticipated. It is possible that this transition process or other factors could result in the loss or departure of key employees, the disruption of our ongoing business, or inconsistencies in standards, controls, procedures and policies. Even if we successfully implement this transition, there is no assurance that our revenues, operating results and profitability will improve as a result of the restructuring.

Our ability to use our net operating loss carryforwards as a result of our recent restructuring.

As of December 31, 2017, we had net operating loss (NOL) carryforwards of approximately \$164.8 million for U.S. federal and state income tax purposes. Under the Internal Revenue Code, an “ownership change” with respect to a corporation can significantly limit the amount of pre-ownership change NOLs and certain other tax assets that the corporation may utilize after the ownership change to offset future taxable income, possibly reducing the amount of cash available to the corporation to satisfy its obligations. An ownership change generally occurs when the aggregate stock ownership of holders of at least 5% of our stock increases by more than 50 percentage points over the preceding three-year period. The issuance of our common stock to the selling stockholders named in this prospectus pursuant to the restructuring caused an ownership change with respect to our stock. Further, the purchase of common stock pursuant to the rights offering may trigger an ownership change with respect to our stock.

Recent tax legislation could significantly impact us or our stockholders.

Public Law no. 115-97, an Act to provide for reconciliation pursuant to titles II and V of the concurrent resolution on the budget for fiscal year 2018, also known as the Tax Cuts and Jobs Act (Tax Act) signed into law by President Trump on December 22, 2017, substantially changes U.S. federal income tax law, which could significantly impact us, our operations and our stockholders. The changes made by the Tax Act include a reduction to the federal corporate income tax rate from 35% to 21%, changes in the deductibility of interest on certain debt obligations, limitations on the usability of NOL carry forwards, and a one-time tax on a deemed repatriation of foreign earnings. We are currently evaluating the Tax Act with our professional advisers. The full impact of the Tax Act on us in future periods cannot be predicted at this time, and no assurances in that regard are made by us. This prospectus does not discuss the Tax Act or the manner in which it might affect us. Prospective acquirers of our common stock should consult their tax advisors about the potential impact of the Act on an investment in our common stock.

USE OF PROCEEDS

We are filing the registration statement of which this prospectus is a part to permit holders of our common stock described in the section entitled “*Selling Stockholders*” to resell such shares. We are not selling any securities under this prospectus and will not receive any proceeds from the sale of shares by the selling stockholders.

We will bear all expenses incurred in connection with the performance of our obligations under the Registration Rights Agreement and will reimburse the selling stockholders for the reasonable fees and disbursements of one firm or counsel to act as counsel for the selling stockholders in connection with this offering.

MARKET PRICE OF OUR COMMON STOCK

Market Information

Our common stock is listed on the NYSE American under the ticker symbol “XTNT.” The following table sets forth the range of high and low sale prices per share of our common stock for each quarter, as reported by NYSE American, for the periods indicated below. Prices have been adjusted to reflect our February 13, 2018 1-for-12 reverse stock split.

	<u>High</u>	<u>Low</u>
Year ended December 31, 2016:		
First Quarter 2016 (January 1, 2016 – March 31, 2016)	\$ 45.00	\$ 24.24
Second Quarter 2016 (April 1, 2016 – June 30, 2016)	\$ 32.64	\$ 18.12
Third Quarter 2016 (July 1, 2016 – September 30, 2016)	\$ 24.60	\$ 11.16
Fourth Quarter 2016 (October 1, 2016 – December 31, 2016)	\$ 14.64	\$ 5.40
Year ended December 31, 2017:		
First Quarter 2017 (January 1, 2017 – March 31, 2017)	\$ 14.16	\$ 3.48
Second Quarter 2017 (April 1, 2017 – June 30, 2017)	\$ 10.56	\$ 4.32
Third Quarter 2017 (July 1, 2017 – September 30, 2017)	\$ 14.52	\$ 7.20
Fourth Quarter 2017 (October 1, 2017 – December 31, 2017)	\$ 10.08	\$ 5.64
Year ending December 31, 2018		
First Quarter 2018 (January 1, 2018 – March 31, 2018)	\$ 11.50	\$ 3.96
Second Quarter 2018 (April 1, 2018 – May 29, 2018)	\$ 8.89	\$ 5.76

Holders of Record

On May 29, 2018, the closing price for our common stock was \$5.91 per share. As of May 29, 2018, we had 175 holders of record. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners, but whose shares are held in street name by brokers and other nominees. This number of holders of record also does not include stockholders whose common stock may be held in trust or by other entities.

DIVIDEND POLICY

We have not paid any cash dividends and do not expect to do so in the foreseeable future. We anticipate that we will retain all of our future earnings, if any, for use in the expansion and operation of our business. In addition, our Amended and Restated Credit Agreement precludes us from paying dividends.

DILUTION

This offering is for sales of common stock, if any, by the selling stockholders on a continuous or delayed basis in the future. Sales of common stock by selling stockholders will not result in a change to the net tangible book value per share before and after the distribution of shares by such selling stockholders.

There will be no change in net tangible book value per share attributable to cash payments made by purchasers of the shares of common stock being offered. Prospective investors should be aware, however, that the price of shares of common stock may not bear any rational relationship to net tangible book value per share of the common stock.

DESCRIPTION OF SECURITIES

The following description summarizes the material terms and provisions of our common stock and preferred stock. For the complete terms of our common stock and preferred stock, please refer to our Amended and Restated Certificate of Incorporation and Second Amended and Restated Bylaws that are filed as exhibits to the registration statement that includes this prospectus. The Delaware General Corporation Law may also affect the terms of our common stock and preferred stock.

Authorized and Outstanding Capital Stock

Our Amended and Restated Certificate of Incorporation provides that we have authority to issue (i) 50,000,000 shares of common stock, par value \$0.000001 per share, 13,077,468 of which are issued and outstanding as of May 29, 2018, after giving effect to the restructuring and the 1-for-12 reverse stock split, and (ii) 10,000,000 shares of preferred stock, par value \$0.000001 per share, none of which are issued and outstanding as of the date of this prospectus. As of May 29, 2018, after giving effect to the restructuring and the 1-for-12 reverse stock split, we had outstanding warrants to purchase approximately 519,917 shares of our common stock and outstanding awards to purchase approximately 135,000 shares of our common stock and approximately 18,000 shares remained available for issuance under the Xtant Medical Holdings, Inc. Amended and Restated Equity Incentive Plan.

Common Stock

Principal Market for our Common Stock

Our common stock is listed on NYSE American under the symbol “XTNT.”

Dividends

Our board of directors may authorize, and we may make, distributions to our stockholders, subject to any restriction in our Amended and Restated Certificate of Incorporation and to those limitations prescribed by law and contractual restrictions. Subject to preferences that may apply to any shares of preferred stock outstanding at the time, the holders of our common stock will be entitled to share equally, identically and ratably in any dividends that our board of directors may determine to issue from time to time. However, we have never paid cash dividends on our common stock or any other securities. We anticipate that we will retain all of our future earnings, if any, for use in the expansion and operation of our business and do not anticipate paying any cash dividends in the foreseeable future. In addition, our Amended and Restated Credit Agreement precludes us from paying dividends.

Fully Paid and Non-Assessable

All shares of our outstanding common stock are fully paid and non-assessable.

Voting Rights

Each share of our common stock is entitled to one vote in each matter submitted to a vote at a meeting of stockholders, including in all elections for directors. Stockholders are not entitled to cumulative voting in the election for directors. Our stockholders may vote either in person or by proxy. Except in respect of matters relating to the election of directors and as otherwise provided in our Amended and Restated Certificate of Incorporation or required by law, all matters to be voted on by our stockholders must be approved by holders of a majority of the shares present in person or by proxy at the meeting and entitled to vote on the subject matter. In the case of election of directors, all matters to be voted on by our stockholders must be approved by a plurality of the votes entitled to be cast by holders of all outstanding shares of common stock.

Preemptive and Other Rights

Holders of our common stock have no preemptive rights and have no other rights to subscribe for additional securities of ours under Delaware law, nor does our common stock have any conversion rights or rights of redemption. Upon liquidation, all holders of our common stock are entitled to participate pro rata in our assets available for distribution, subject to the rights of any class of preferred stock then outstanding.

Preferred Stock

Though we currently have no plans to issue any shares of preferred stock, our board of directors has the authority, without further action by our stockholders, to designate and issue up to 10,000,000 shares of preferred stock in one or more series. Our board of directors may also designate the rights, preferences and privileges of the holders of each such series of preferred stock, any or all of which may be greater than or senior to those granted to the holders of our common stock. Though the actual effect of any such issuance on the rights of the holders of our common stock will not be known until our board of directors determines the specific rights of the holders of preferred stock, the potential effects of such an issuance include:

- diluting the voting power of the holders of common stock;
- reducing the likelihood that holders of common stock will receive dividend payments;
- reducing the likelihood that holders of common stock will receive payments in the event of our liquidation, dissolution or winding up; and
- delaying, deterring or preventing a change in control or other corporate takeover.

Anti-Takeover Provisions

Amended and Restated Certificate of Incorporation and Second Amended and Restated Bylaws

Because our stockholders do not have cumulative voting rights, our stockholders holding a majority of the shares of common stock outstanding will be able to elect all of our directors. Our Second Amended and Restated Bylaws provide that only our board of directors, Chairman of the board or Chief Executive Officer may call a special meeting of stockholders.

The combination of these factors, in addition to the fact that we are a “controlled company” within the meaning of the corporate governance standards of the NYSE American, will make it more difficult for our existing stockholders to replace our board of directors as well as for another party to obtain control of us by replacing our board of directors. Since our board of directors has the power to retain and discharge our officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management. In addition, these provisions may have the effect of deterring hostile takeovers or delaying changes in our control or management. These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal. The provisions also are intended to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our stock and, as a consequence, they also may inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts.

Limitations of Liability and Indemnification Matters

We have adopted provisions in our Amended and Restated Certificate of Incorporation that limit or eliminate the liability of our directors for monetary damages for breach of their fiduciary duties, except for a breach of the duty of loyalty to our Company or its stockholders, for acts or omissions not in good faith or involving intentional misconduct or a knowing violation of law, or for any transaction from which a director derived an improper personal benefit. Accordingly, our directors will not be personally liable for monetary damages for breach of their fiduciary duties as directors, except with respect to the following:

- any breach of their duty of loyalty to us or our stockholders;
- acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- any transaction from which the director derived an improper personal benefit.

This limitation of liability does not apply to liabilities arising under the federal securities laws and does not affect the availability of equitable remedies such as injunctive relief or rescission. If Delaware law is amended to authorize the further elimination or limiting of director liability, then the liability of our directors will be eliminated or limited to the fullest extent permitted by Delaware law as so amended.

Our Second Amended and Restated Bylaws provide for mandatory indemnification of directors and officers to the maximum extent allowed by applicable law. We believe that indemnification under our Second Amended and Restated Bylaws covers at least negligence and gross negligence on the part of indemnified parties. In addition, we have also entered into indemnification agreements with our directors and officers, pursuant to which we must:

- indemnify officers and directors against certain liabilities that may arise because of their status as officers and directors;
- advance expenses, as incurred, to officers and directors in connection with a legal proceeding subject to limited exceptions; and
- cover officers and directors under any general or directors' and officers' liability insurance policy maintained by us.

We also maintain directors' and officers' liability insurance.

We believe that these provisions and agreements are necessary to attract and retain qualified persons as directors and executive officers. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling us pursuant to the foregoing provisions, the opinion of the SEC is that such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Transfer Agent

The transfer agent for our common stock is Corporate Stock Transfer, Inc.

SELLING STOCKHOLDERS

The shares of common stock offered under this prospectus may be offered from time to time by the selling stockholders named below or by any of their pledgees, donees, transferees or other successors-in-interest. As used in this prospectus, the term “selling stockholder” includes those selling stockholders identified below and any donees, pledges, transferees or other successors-in-interest selling shares received after the date of this prospectus from a selling stockholder as a gift, pledge or other non-sale related transfer. All of the selling stockholders named below acquired the shares of common stock being offered under this prospectus directly from us. We issued the shares to the selling stockholders pursuant to an exemption from the registration requirements of the Securities Act provided by Section 4(a)(2) thereof and Regulation D promulgated thereunder.

The following table sets forth as of May 29, 2018: (1) the name of each selling stockholder for whom we are registering shares of common stock under the registration statement of which this prospectus is a part, (2) the number of shares of common stock beneficially owned by each of the selling stockholders prior to the offering, determined in accordance with Rule 13d-3 under the Securities Exchange Act of 1934, as amended (Exchange Act), (3) the number of shares of common stock that may be offered by each selling stockholder under this prospectus and (4) the number of shares of common stock to be owned by each selling stockholder after completion of this offering. We will not receive any of the proceeds from the sale of the shares of common stock offered under this prospectus. The amounts and information set forth below are based upon information provided to us by the selling stockholders or his, her or its representative, or on our records, as of May 29, 2018. The percentage of beneficial ownership for the following table is based on 13,077,468 shares of common stock outstanding as of May 29, 2018.

To our knowledge, except as indicated in the footnotes to this table, each person named in the table has sole voting and investment power with respect to all shares of common stock shown in the table to be beneficially owned by such person. Except as described below, none of the selling stockholders has had any position, office or other material relationship with us or any of our predecessors or affiliates within the past three years. In addition, based on information provided to us, none of the selling stockholders that are affiliates of broker-dealers, if any, purchased the shares of common stock outside the ordinary course of business or, at the time of their acquisition of such shares, had any agreements, understandings or arrangements with any other persons, directly or indirectly, to dispose of the shares. Information concerning the selling stockholders may change from time to time, and any changed information will be set forth in supplements to this prospectus to the extent required.

Name of Selling Stockholder	Shares Beneficially Owned Prior to the Offering		Number of Shares Being Offered	Shares Beneficially Owned After Completion of the Offering	
	Number	Percentage		Number	Percentage
ROS Acquisition Offshore LP ⁽¹⁾	5,898,193	45.1%	5,851,266	46,927	*
OrbiMed Royalty Opportunities II, LP ⁽²⁾	3,316,128	25.4%	3,316,128	—	—
Park West Investors Master Fund, Limited ^{(3)†}	1,104,905	8.4%	1,104,905	—	—
Telemetry Securities, L.L.C. ^{(4)†}	814,474	6.2%	814,474	—	—
Bruce Fund, Inc. ⁽⁵⁾	296,172	2.3%	296,172	—	—
Park West Partners International, Limited ^{(3)†}	153,828	1.2%	153,828	—	—
TOTAL	11,583,700		11,536,773	46,927	

* Less than one percent (1%)

† The selling stockholders identified with a crosshatch have identified that they are, or are affiliates of, registered broker-dealers. These selling stockholders have represented that they acquired their securities in the ordinary course of business and in the open market, and, at the time of the acquisition of the securities, had no agreements or understandings, directly or indirectly, with any person to distribute the securities.

(1) Based solely on information contained in a Form 4 filed with the SEC on February 23, 2018. Includes 5,890,884 shares of common stock and 7,309 shares of common stock issuable upon exercise of a warrant held of record by ROS. OrbiMed Advisors LLC (OrbiMed Advisors), a registered adviser under the Investment Advisors Act of 1940, as amended, is the investment manager of ROS. OrbiMed Advisors is also the investment manager of Royalty Opportunities S.à.r.l., of which ROS is a wholly-owned subsidiary. By virtue of such relationships, OrbiMed Advisors may be deemed to have voting and investment power with respect to the securities held by ROS noted above and as a result may be deemed to have beneficial ownership over such securities. OrbiMed Advisors exercised this investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho and Jonathan T. Silverstein, each of whom disclaims beneficial ownership of the securities held by ROS. The principal business address for each of ROS and OrbiMed Advisors is 601 Lexington Avenue, 54th Floor, New York, New York 10022.

- (2) These securities are held of record by Royalty Opportunities. OrbiMed ROF II LLC (ROF II) is the sole general partner of Royalty Opportunities, and OrbiMed Advisors is the sole managing member of ROF II. By virtue of such relationships, OrbiMed Advisors may be deemed to have voting and investment power with respect to the securities held by Royalty Opportunities noted above and as a result may be deemed to have beneficial ownership over such securities. OrbiMed Advisors exercised this investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho and Jonathan T. Silverstein, each of whom disclaims beneficial ownership of the securities held by Royalty Opportunities. The principal business address for each of Royalty Opportunities, ROF II and OrbiMed Advisors is 601 Lexington Avenue, 54th Floor, New York, New York 10022.
- (3) Park West Investors Master Fund, Limited (PWIMF) and Park West Partners International, Limited (PWPI) are directly or indirectly controlled by Park West Asset Management LLC. Peter S. Park, manager of Park West Asset Management LLC, has sole voting and investment power over the shares owned by PWIMF and PWPI. The principal business address for each of PWIMF and PWPI is 900 Larkspur Landing Circle, Suite 165, Larkspur, California 94939.
- (4) Telemetry Securities, L.L.C. (Telemetry) is a subsidiary of Telemetry Investments, L.L.C. (Telemetry Investments), an investment company registered under the Investment Company Act of 1940, as amended. As such, Telemetry Investments may share voting or dispositive power over the securities held by Telemetry.
- (5) R. Jeffrey Bruce has sole voting and investment control over the shares of common stock held by Bruce Fund, Inc.

Material Relationships Between Selling Stockholders and Xtant

Restructuring Agreement

On January 11, 2018, we entered into the Restructuring Agreement with the selling stockholders named in this prospectus, which at that time constituted all of the holders of our outstanding Notes. Pursuant to the terms of the Restructuring Agreement, on January 17, 2018, ROS and Royalty Opportunities converted certain Notes issued to them in January 2017 in the aggregate principal amount of \$1.627 million, plus accrued and unpaid interest, at the \$0.7589 per share conversion rate originally provided thereunder, into 2,275,745 shares of our common stock (or approximately 189,645 shares of our common stock after giving effect to the 1-for-12 reverse stock split). On February 14, 2018, following approval by our stockholders and after completion of the 1-for-12 reverse stock split, the remaining \$70.238 million aggregate principal amount of the Notes held by the selling stockholders, plus accrued and unpaid interest, was exchanged for newly-issued shares of our common stock at an exchange rate of 138.8889 shares per \$1,000 principal amount of Notes, for an exchange price of \$7.20 per share. Such remaining Notes were exchanged for approximately 10.4 million newly-issued shares of our common stock. Furthermore, as described below, on February 14, 2018, ROS and Royalty Opportunities purchased from us in a private placement an aggregate of \$6,809,896 in shares of our common stock at a price per share of \$7.20, or 945,819 shares of our common stock.

Pursuant to the terms of the Restructuring Agreement, we commenced a rights offering on April 27, 2018 to allow our stockholders as of the April 27, 2018 record date, including the selling stockholders, to purchase up to an aggregate of 1,137,515 shares of our common stock at a subscription price of \$7.20 per share.

Private Placement SPA

On February 14, 2018, we entered into a Securities Purchase Agreement (Private Placement SPA) with ROS and Royalty Opportunities. Pursuant to the Private Placement SPA, on February 14, 2018, ROS and Royalty Opportunities purchased from us a total of 945,819 shares of our common stock, at a price of \$7.20 per share, for aggregate proceeds of \$6,809,896. Under the Private Placement SPA, 603,687 of such shares of our common stock were issued to ROS and 342,132 of such shares of common stock were issued to Royalty Opportunities.

Registration Rights Agreement

Effective February 14, 2018, we entered into a Registration Rights Agreement with the selling stockholders, which requires us, among other things, to file with the SEC a shelf registration statement (which, initially, will be on Form S-1 and, as soon as we are eligible, on Form S-3) covering the resale, from time to time, of our common stock that was issued upon conversion or exchange of the Notes and in the February 2018 private placement no later than May 15, 2018 and use our best efforts to cause the shelf registration statement to become effective under the Securities Act no later than August 13, 2018. The registration statement, of which this prospectus is a part, was filed pursuant to our obligations under the Registration Rights Agreement.

Investor Rights Agreement

Effective February 14, 2018, we entered into an Investor Rights Agreement with Royalty Opportunities, ROS, PWPI and PWIMF. Under the Investor Rights Agreement, ROS and Royalty Opportunities are permitted to nominate a majority of the directors and designate the chairperson of our board of directors at subsequent annual meetings, as long as they maintain an ownership threshold in our Company of at least 40% of our then outstanding common stock (the Ownership Threshold). If ROS and Royalty Opportunities are unable to maintain the Ownership Threshold, the Investor Rights Agreement contemplates a reduction of nomination rights commensurate with our ownership interests.

For so long as the Ownership Threshold is met, we must obtain the approval of a majority of our common stock held by ROS and Royalty Opportunities to proceed with the following actions: (i) issue new securities; (ii) incur over \$250,000 of debt in a fiscal year; (iii) sell or transfer over \$250,000 of our assets or businesses or our subsidiaries in a fiscal year; (iv) acquire over \$250,000 of assets or properties in a fiscal year; (v) make capital expenditures over \$125,000 individually, or \$1,500,000 in the aggregate during a fiscal year; (vi) approve our annual budget; (vii) hire or terminate our chief executive officer; (viii) appoint or remove the chairperson of our board of directors; and (ix) make, loans to, investments in, or purchase, or permit any subsidiary to purchase, any stock or other securities in another entity in excess of \$250,000 in a fiscal year. As long as the Ownership Threshold is met, we may not increase the size of our board or directors beyond seven directors without the approval of a majority of the directors nominated by ROS and Royalty Opportunities.

The Investor Rights Agreement grants Royalty Opportunities, ROS, PWPI and PWIMF the right to purchase from us a pro rata amount of any new securities that we may propose to issue and sell. The Investor Rights Agreement may be terminated (a) upon the mutual written agreement of all the parties, (b) upon our written notice, ROS or Royalty Opportunities if ROS and Royalty Opportunities's ownership percentage of our then outstanding common stock is less than 10%, or (c) upon written notice of ROS and Royalty Opportunities. The right of PWPI and PWIMF to purchase from us a pro rata amount of any new securities will terminate at such time as their aggregate ownership percentage of our then outstanding common stock is less than 8.5%.

Amended and Restated Credit Agreement

We entered into a credit agreement with ROS on August 24, 2012, which was amended and restated on July 27, 2015 and subsequently amended 23 times thereafter, most recently on February 14, 2018 in connection with our restructuring (collectively, the Amended and Restated Credit Agreement), which established a credit facility (Credit Facility). The material amendments are described below.

On July 31, 2015, we recorded \$42 million of principal debt pursuant to the Credit Facility with ROS and Royalty Opportunities, which has a maturity date of July 31, 2020 (Maturity Date). Interest under the Credit Facility is bifurcated into a "cash pay" portion and a "payment-in-kind" portion. Until June 30, 2018 (First Period), interest on loans outstanding under the Credit Facility will accrue at a rate equal to the sum of (a) 9% per annum, which portion of interest will be payable in cash, plus (b) additional interest (PIK Interest) in an amount equal to (i) the sum of 14% per annum, plus the higher of (x) the LIBO Rate and (y) 1% per annum, minus (ii) 9% per annum, which portion of interest will be payable "in kind." On or after June 30, 2018 until the Credit Facility is repaid in full (Second Period), interest on loans outstanding under the Credit Facility will accrue at a rate equal to the sum of (a) 12% per annum, which portion of interest will be payable in cash, plus (b) PIK Interest in an amount equal to the difference of (i) the sum of 14% per annum, plus the higher of (x) the LIBO Rate and (y) 1% per annum, minus (ii) 12% per annum, which portion of interest will be payable "in kind." In both the First Period and the Second Period, the portion of accrued interest constituting PIK Interest will not be payable in cash but will instead be added to the principal amount outstanding under the Credit Facility. However, at our option, we may choose to make any "payment-in-kind" interest payment in cash. Until the third anniversary of the closing date of the Credit Facility, we will not be allowed to voluntarily prepay the Credit Facility. Whenever loans outstanding under the Credit Facility are prepaid or paid, whether voluntarily, involuntarily or on the Maturity Date, a fee of 7.5% on the amount paid will be due and payable.

The Credit Facility contains financial and other covenant requirements, including, but not limited to, financial covenants that require us to maintain revenue and liquidity at levels set forth in the Credit Facility and ensure that the Company's senior consolidated leverage ratio does not exceed levels set forth in the Credit Facility. The Credit Facility also restricts us from making any payment or distribution with respect to, or purchasing, redeeming, defeasing, retiring or acquiring, the Notes other than payments of scheduled interest on the Notes, issuance of shares of our common stock upon conversion of the Notes, and payment of cash in lieu of fractional shares. The loans under the Credit Facility are guaranteed by us and our current and future subsidiaries and are secured by substantially all of the current and future assets of our Company and our subsidiaries.

On July 29, 2016, we entered into the fourth amendment to the Credit Facility which provided for an additional "Tranche A Commitment" in an amount up to \$1,000,000 from ROS and Royalty Opportunities, which was made available to us on July 29, 2016.

On September 27, 2016, we entered into the sixth amendment to the Credit Facility which increased the fee on any amounts paid under the Credit Facility from 7.5% to 9.0%. Under the sixth amendment, regular interest will not accrue during the period from July 1, 2016 to September 30, 2016; however, during such period, PIK Interest will accrue at a rate per annum equal to 9.00%, and such PIK Interest will be added to the outstanding principal amount of the loans at September 30, 2016. The sixth amendment also modified the negative covenants of the Credit Facility by increasing the amount of purchase money indebtedness and capitalized lease liabilities allowed to be incurred by us.

The seventh amendment (effective December 31, 2016), eighth amendment (effective January 13, 2017), ninth amendment (effective January 31, 2017), tenth amendment (effective February 14, 2017), eleventh amendment (effective February 28, 2017), twelfth amendment (effective March 31, 2017), thirteenth amendment (effective April 30, 2017), fourteenth amendment (effective May 11, 2017), fifteenth amendment (effective June 30, 2017), sixteenth amendment (effective July 15, 2017), seventeenth amendment (effective August 11, 2017), eighteenth amendment (effective September 29, 2017), nineteenth amendment (effective October 31, 2017), twentieth amendment (effective November 30, 2017), and twenty-first amendment (effective December 28, 2017) deferred our accrued interest payment date for the fiscal quarters ended on December 31, 2016, March 31, 2017, June 30, 2017, September 30, 2017 and December 31, 2017 until January 31, 2018.

The interest due on January 31, 2018 for the fiscal quarter ended on December 31, 2016 was \$1,147,329, plus interest accrued on such interest from January 2, 2017 until paid at a rate equal to 14% plus the higher of the LIBO Rate (as defined in the Credit Facility) for the fiscal quarter ended on December 31, 2016, or 1%. The interest due on January 31, 2018 for the fiscal quarter ended on March 31, 2017 is \$1,139,597, plus interest accrued on such interest from April 1, 2017 until paid at a rate equal to 14% plus the higher of the LIBO Rate for the fiscal quarter ended on March 31, 2017, or 1%. The interest due on January 31, 2018 for the fiscal quarter ended on June 30, 2017 was \$1,303,935, plus interest accrued on such interest from July 1, 2017 until paid at a rate equal to 14% plus the higher of the LIBO Rate for the fiscal quarter ended on June 30, 2017, or 1%. The interest due on January 31, 2018 for the fiscal quarter ended on September 30, 2017 was \$1,482,406, plus interest accrued on such interest from October 2, 2017 until paid at a rate equal to 14% plus the higher of the LIBO Rate for the fiscal quarter ended on September 30, 2017, or 1%. The interest due on January 31, 2018 for the fiscal quarter ended on December 31, 2017 was \$1,521,262, plus interest accrued on such interest from January 2, 2018 until paid at a rate equal to 14% plus the higher of the LIBO Rate for the fiscal quarter ended on December 31, 2017, or 1%.

The twelfth amendment waived any non-compliance with the covenant set forth in Section 7.1(c) of the Credit Facility due to the going concern qualification included in our audit report for the year ended December 31, 2016.

The fourteenth amendment to the Credit Facility allowed us to borrow additional term loans from ROS and Royalty Opportunities in an aggregate amount of up to \$15,000,000 (Additional Delayed Draw Loans), of which \$12,787,094 was drawn as of May 15, 2018. Each loan draw made by us is subject to our production of a thirteen-week cash flow forecast that is approved by ROS and Royalty Opportunities. The funding of each Additional Delayed Draw Loan by ROS and Royalty Opportunities is subject to the satisfaction (or waiver in writing by each lender) of conditions precedent, including closing certificate, delivery of budget, the hiring of a chief restructuring officer, a payoff letter from Silicon Valley Bank, a previous lender to us, and other satisfactory documents.

The twentieth amendment modified the consolidated senior leverage ratio financial covenant of the Credit Facility by moving the commencement date of the covenant from the most recent four fiscal quarters ended December 31, 2017, to the most recent four fiscal quarters ended March 31, 2018. The twentieth amendment waived any non-compliance with the covenant set forth in Section 7.1(b) of the Credit Facility with respect to the timely filing of our quarterly report on Form 10-Q for the quarterly period ended September 30, 2017.

Effective November 14, 2017, we, ROS and Royalty Opportunities, entered into a Waiver to Amended and Restated Credit Agreement, which waived any non-compliance with the minimum revenue base covenant for the quarter ending September 30, 2017.

The twenty-first amendment modified the minimum liquidity financial covenant of the Credit Facility by allowing us and our subsidiaries to maintain a liquidity amount of not less than \$100,000 until January 31, 2018. At all times after January 31, 2018, the liquidity of our Company and our subsidiaries must not be less than \$5,000,000.

Effective January 30, 2018, we, ROS and Royalty Opportunities, entered into the Twenty-Second Amendment to Amended and Restated Credit Agreement, which amended the Credit Facility. The amendment further deferred our accrued interest payment date for the fiscal quarters ended on December 31, 2016, March 31, 2017, June 30, 2017, September 30, 2017 and December 31, 2017 until February 28, 2018.

The interest due on February 28, 2018 for the fiscal quarter ended on December 31, 2016, was \$1,147,329, plus interest accrued on such interest from January 2, 2017 until paid at a rate equal to 14% plus the higher of the LIBO Rate (as defined in the Credit Facility) for the fiscal quarter ended on December 31, 2016, or 1%. The interest due on February 28, 2018 for the fiscal quarter ended on March 31, 2017 was \$1,139,597, plus interest accrued on such interest from April 1, 2017 until paid at a rate equal to 14% plus the higher of the LIBO Rate for the fiscal quarter ended on March 31, 2017, or 1%. The interest due on February 28, 2018 for the fiscal quarter ended on June 30, 2017 was \$1,303,935, plus interest accrued on such interest from July 1, 2017 until paid at a rate equal to 14% plus the higher of the LIBO Rate for the fiscal quarter ended on June 30, 2017, or 1%. The interest due on February 28, 2018 for the fiscal quarter ended on September 30, 2017 was \$1,482,406, plus interest accrued on such interest from October 2, 2017 until paid at a rate equal to 14% plus the higher of the LIBO Rate for the fiscal quarter ended on September 30, 2017, or 1%. The interest due on February 28, 2018 for the fiscal quarter ended on December 31, 2017 was \$1,521,262, plus interest accrued on such interest from January 2, 2018 until paid at a rate equal to 14% plus the higher of the LIBO Rate for the fiscal quarter ended on December 31, 2017, or 1%.

The amendment also modified the minimum liquidity financial covenant of the Credit Facility by allowing us and our subsidiaries to maintain a liquidity amount of not less than \$100,000 until February 28, 2018. At all times after February 28, 2018, the liquidity of our Company and our subsidiaries must not be less than \$5,000,000.

Effective February 14, 2018, we, ROS and Royalty Opportunities, entered into the Twenty-Third Amendment to Amended and Restated Credit Agreement, which amended the Credit Facility. As of this Amendment, the interest payable has been carried forward at the modified interest rate options within the Credit Facility as follows: (a) through December 31, 2018, we will have the option at our sole discretion (i) to pay PIK Interest at LIBOR (as defined in the Credit Facility) plus 12% or (ii) pay cash interest at LIBOR plus 10%; (b) beginning January 1, 2019 through June 30, 2019, we will have the option at our sole discretion to either (i) pay PIK Interest at LIBOR plus 15% or (ii) pay cash interest at LIBOR plus 10%; and (c) beginning July 1, 2019 through the Maturity Date, we will pay cash interest at LIBOR plus 10%. This amendment also reduced the prepayment or repayment fee under the Credit Facility to 1%. The amendment also made certain modifications to the financial covenants in the Amended and Restated Credit Agreement, including removing the minimum revenue covenant, providing a minimum liquidity covenant, a consolidated leverage ratio, and minimum consolidated EBITDA, all as defined in the Amended and Restated Credit Agreement. The loans under the Credit Facility are guaranteed by us and our current and future subsidiaries and are secured by substantially all of our current and future assets and our subsidiaries.

Convertible Note Indenture

On July 31, 2015, we completed an offering of \$65 million aggregate principal amount of 6.00% convertible senior unsecured notes due 2021 (Notes) in a private offering to qualified institutional buyers, as defined in Rule 144A under the Securities Act, when we entered into an Indenture with Wilmington Trust, National Association (Indenture). ROS and Royalty Opportunities initially purchased \$49 million aggregate principal amount of the Notes directly from us, while Bruce Fund, Inc. (Bruce Fund), Park West Partners International, Limited, Park West Investors Master Fund, Limited, and Telemetry Securities, L.L.C. (Telemetry and, together with ROS, Royalty Opportunities, Bruce Fund, PWPI and PWIMF, collectively, the Holders), collectively purchased the remaining \$16 million of the Notes. On August 10, 2015, ROS and Royalty Opportunities exercised their option with respect to an additional \$3 million aggregate principal amount of the Notes, for a total aggregate principal amount of \$52 million of the Notes in the offering.

On April 14, 2016, we entered into a securities purchase agreement with ROS and Royalty Opportunities and issued \$2,238,166 aggregate principal amount of convertible senior unsecured notes (2016 Notes) in a private placement. The proceeds were utilized to pay interest due for both the Notes and the Credit Facility (described below) on April 15, 2016. The 2016 Notes may be converted into shares of our common stock at an initial conversion price of approximately \$34.80 per share.

On January 17, 2017, we entered into securities purchase agreements with Bruce Fund, PWPI, PWIMF and Telemetry, to satisfy interest obligations that were owed to such parties under the Notes issued to them under the Indenture. Pursuant to such agreements, the parties agreed to purchase from us a total of 70,274 shares of our common stock at a price of \$6.83 per share.

On January 17, 2017, we entered into securities purchase agreements and certain related documents with ROS and Royalty Opportunities to satisfy interest obligations that we owed to them pursuant to the Notes and the 2016 Notes. Pursuant to such agreements, ROS and Royalty Opportunities agreed to purchase from us a new series of 6% Convertible Senior Notes Due 2021 in the aggregate original principal amount of up to \$1,560,000 for the Notes, and \$67,145 for the 2016 Notes (collectively, the 2017 Notes and together with the 2016 Notes, the Additional Notes). The 2017 Notes are convertible into our common stock at a conversion price of \$9.11 per share.

The Additional Notes and the Notes bore interest at a rate equal to 6.00% per year. Interest on the Additional Notes and the Notes was scheduled to be payable semiannually in arrears on January 15 and July 15 of each year. Interest accrued on the Additional Notes and the Notes from the last date to which interest has been paid or duly provided for. Unless earlier converted or repurchased, the Additional Notes and the Notes were scheduled to mature on July 15, 2021.

Effective March 31, 2017, the Company, ROS and Royalty Opportunities entered into a waiver letter (Indenture Waiver) of the Indenture. Under the Indenture Waiver, ROS and Royalty Opportunities waived any non-compliance with the covenant set forth in Section 6.01(a)(vii) of the Indenture due to the going concern qualification included in our audit report for the year ended December 31, 2016.

ROS and Royalty Opportunities also entered into a waiver (Notes Waiver) for defaults that occurred under multiple convertible promissory notes (including the Notes and the Additional Notes). Under the Notes Waiver, ROS and Royalty Opportunities waived any non-compliance with the covenants set forth in Section 6.01(a)(vii) of their respective notes due to the going concern qualification included in our audit report for the year ended December 31, 2016.

Effective July 15, 2017, the Holders entered into an omnibus waiver which deferred interest accrued on the Notes (Omnibus Waiver). Under the Omnibus Waiver and pursuant to Section 9.02 of the Indenture and Section 10.13 of the Notes, the interest due July 15, 2017 on the Notes was deferred until August 15, 2017, to be paid in cash together with interest accrued on such interest from July 15, 2017 to the date of the payment thereof at a rate equal to 6.00% per annum plus 100 basis points. Also under the Omnibus Waiver, the Holders waived any event of default that occurred under the Indenture or the Notes as a result of our failure to pay interest accrued on the Notes on July 15, 2017. The convertible interest due on July 15, 2017 under our various convertible promissory notes was deferred by the holders of such notes until August 15, 2017.

Effective August 15, 2017, September 29, 2017, October 31, 2017, November 30, 2017 and December 28, 2017, the Company, ROS and Royalty Opportunities entered into the Amendment and Waiver, and the Second, Third, Fourth and Fifth Amendment and Waiver, respectively, which amended the Additional Notes by moving the payment date of interest accrued on the Additional Notes as follows: (a) for interest accrued on the Additional Notes that was originally required to be paid on July 15, 2017, from July 15, 2017 to January 31, 2018, and (b) for interest accrued on the Additional Notes that is required to be paid on January 15, 2018, from January 15, 2018 to January 31, 2018. The amendment also waived any event of default that may have occurred as a result of the non-payment of interest on July 15, 2017 or January 15, 2018. The interest payment due on January 31, 2018 includes interest accrued on such interest from July 15, 2017 and January 15, 2018, respectively, to the date of payment thereof at a rate equal to 6.00% per annum plus 100 basis points.

Effective August 16, 2017, October 2, 2017, October 31, 2017, December 1, 2017 and December 29, 2017, the Company and Wilmington Trust, National Association, entered into the Amendment Numbers 1, 2, 3, 4 and 5 to the Indenture, respectively, which amended the existing Indenture. The amendments amended the Indenture by moving the payment date of interest accrued on the Notes issued under the Indenture as follows: (a) for interest accrued on the Notes that was originally required to be paid on July 15, 2017, from July 15, 2017 to January 31, 2018, and (b) for interest accrued on the Notes that is required to be paid on January 15, 2018, from January 15, 2018 to January 31, 2018. Amendment Number 5 to the Indenture also set the record dates for the January 31, 2018 interest payments at June 30, 2017 and December 31, 2017, respectively, and waived any event of default that may have occurred as a result of the non-payment of interest on July 15, 2017 or January 15, 2018. The interest payments due on January 31, 2018 includes interest accrued on such interest from July 15, 2017 and January 15, 2018, respectively, to the date of payment thereof at a rate equal to 6.00% per annum plus 100 basis points.

Effective January 17, 2018, we entered into the Sixth Amendment with ROS and Royalty Opportunities, which amended the 2017 Notes. The amendment amended the 2017 Notes by removing the limitations on stock ownership that prevented ROS, Royalty Opportunities or any of their affiliates from effecting a conversion of the 2017 Notes if such conversion would result in the holder or any of its affiliates beneficially owning in excess of 9.99% of the then outstanding shares of our common stock and providing that the Conversion Consideration (as defined therein) due upon conversion of the 2017 Notes shall account for any accrued and unpaid interest on the 2017 Notes.

Effective January 30, 2018, we entered into the Amendment Number 6 to the Indenture with Wilmington Trust, National Association, which amended the Indenture. The amendment amended the Indenture by moving the payment date of interest accrued on the Notes issued under the Indenture as follows: (a) for interest accrued on the such Notes that was originally required to be paid on July 15, 2017, from January 31, 2018 to February 28, 2018, and (b) for interest accrued on the such Notes that was required to be paid on January 15, 2018, from January 31, 2018 to February 28, 2018. The Indenture Amendment also set the record dates for the February 28, 2018 interest payments at June 30, 2017 and December 31, 2017, respectively, and waived any event of default that may have occurred as a result of the non-payment of interest on July 15, 2017 or January 15, 2018. The interest payments due on February 28, 2018 includes interest accrued on such interest from July 15, 2017 and January 15, 2018, respectively, to the date of payment thereof at a rate equal to 6.00% per annum plus 100 basis points.

Effective January 30, 2018, we entered into the Sixth Amendment and Waiver with ROS and Royalty Opportunities, which amended the 2016 Notes. The amendment amended the 2016 Notes by moving the payment date of interest accrued on the 2016 Notes as follows: (a) for interest accrued on the 2016 Notes that was originally required to be paid on July 15, 2017, from January 31, 2018 to February 28, 2018, and (b) for interest accrued on the 2016 Notes that was required to be paid on January 15, 2018, from January 31, 2018 to February 28, 2018. The amendment also waived any event of default that may have occurred as a result of the non-payment of interest on July 15, 2017 or January 15, 2018. The interest payment due on February 28, 2018 includes interest accrued on such interest from July 15, 2017 and January 15, 2018, respectively, to the date of payment thereof at a rate equal to 6.00% per annum plus 100 basis points.

As previously mentioned, pursuant to the Restructuring Agreement, and following the execution of the Sixth Amendment to the 2017 Notes, described above, on January 17, 2018, ROS and Royalty Opportunities converted the 2017 Notes, plus accrued and unpaid interest, at the \$9.11 per share conversion rate originally provided thereunder, into 189,645 shares of our common stock (of which 121,045 of such shares of common stock were issued to ROS and 68,600 of such shares of common stock were issued to Royalty Opportunities).

In addition, as previously mentioned, pursuant to the Restructuring Agreement, and after approval of the stockholders at the Company's special meeting of stockholders held on February 13, 2018 (Special Meeting), on February 14, 2018, the remaining \$70.238 million aggregate principal amount of our outstanding 6.00% convertible senior unsecured notes due 2021 held by the Holders (Remaining Notes), consisting of the Notes and the 2016 Notes, plus accrued and unpaid interest, were exchanged for newly-issued shares of our common stock at an exchange rate of 138.8889 shares per \$1,000 principal amount of the Remaining Notes, for an exchange price of \$7.20 per share (Notes Exchange). This resulted in the issuance of 10,401,309 shares of our common stock to the Holders as follows:

Holder	Shares of Common Stock Issued in Notes Exchange
ROS	5,126,534
Royalty Opportunities	2,905,396
Bruce Fund	296,172
PWPI	153,828
PWIMF	1,104,905
Telemetry	814,474

Upon the completion of the Notes Exchange, all outstanding obligations under the Remaining Notes were satisfied in full and the Indenture and the 2016 Notes were discharged.

Support Agreement

On January 11, 2018, our executive officers and directors and certain of our stockholders (collectively the Support Equityholders), entered into a support agreement with ROS and Royalty Opportunities (Support Agreement) simultaneously with the execution of the Restructuring Agreement. Under the Support Agreement, the Support Equityholders agreed to vote their shares of common stock in favor of the approval of: (i) the amendment to our Charter and the issuance of common stock pursuant to the Notes Exchange, (ii) any proposal to adjourn or postpone the meeting to a later date, if there were not sufficient votes for the approval of the such proposals on the date on which such meeting is held, and (iii) any other proposal included in the proxy statement for the Special Meeting that relates to the consummation of the restructuring that the Xtant board of directors recommended our stockholders approve. The Support Equityholders also appointed ROS and Royalty Opportunities as attorney-in-fact and proxy to vote all applicable shares of the Support Equityholders consistent with the provisions of the Support Agreement. The Support Equityholders made standard representations and warranties related to their ownership of common stock.

Other Relationships with ROS and Royalty Opportunities

Matthew Rizzo and Michael Eggenberg, both of whom are employees of OrbiMed Advisors, and Jeffrey Peters, a Venture Partner with OrbiMed Advisors, were elected to our board of directors on February 13, 2018, and, accordingly, OrbiMed Advisors may have the ability to affect and influence control over us. As non-employee directors, from time to time, Messrs. Rizzo, Eggenberg and Peters may receive equity awards pursuant to our compensation arrangements for non-employee directors.

PLAN OF DISTRIBUTION

The selling stockholders and any of their respective transferees, pledgees, donees, assignees or other successors-in-interest may, from time to time, sell any or all their respective shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions, subject to certain transfer restrictions imposed upon certain of the shares of common stock covered by this prospectus. See “*Selling Stockholders*.” Such sales may be made on one or more exchanges or in the over-the-counter market or otherwise, at prices and under terms then prevailing or at prices related to the then current market price or in negotiated transactions. The selling stockholders may use any one or more of the following methods when selling shares:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- agreements between broker-dealers and the selling stockholder to sell a specified number of such shares at a stipulated price per share;
- an exchange or market distribution in accordance with the rules of the NYSE American;
- on the over-the-counter market;
- in transactions otherwise than on these exchanges or systems or in the over-the-counter market;
- privately negotiated transactions;
- settlement of short sales entered into after the effective date of the registration statement of which this prospectus is a part;
- broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- through options, swaps or derivatives;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

The selling stockholders also may sell shares under Rule 144 under the Securities Act, if available, rather than under this prospectus.

The selling stockholders also may transfer the shares of common stock in other circumstances, in which case the transferees or other successors-in-interest will be the selling beneficial owners for purposes of this prospectus.

In effecting sales, broker-dealers or agents engaged by the selling stockholders may arrange for other broker-dealers to participate. Broker-dealers or agents may receive commissions, discounts or concessions from the selling stockholders in amounts to be negotiated immediately prior to the sale. In connection with sales of the shares of common stock offered hereby or otherwise, the selling stockholders may enter into hedging transactions with broker-dealers, which may in turn engage in short sales of the shares of common stock offered hereby in the course of hedging in positions they assume. The selling stockholders may also sell shares of common stock offered hereby short and deliver shares of common stock covered by this prospectus to close out short positions and to return borrowed shares in connection with such short sales. The selling stockholders may also loan or pledge shares of common stock offered hereby to broker-dealers that in turn may sell such shares.

In offering the shares covered by this prospectus, the selling stockholders and any broker-dealers who execute sales for the selling stockholders may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such case, any profits realized by the selling stockholders and the compensation of any broker-dealer may be deemed to be underwriting discounts and commissions. In no event shall any broker-dealer receive fees, commissions and markups which, in the aggregate, would exceed the amount permitted by applicable regulations.

In order to comply with the securities laws of certain states, if applicable, the shares must be sold in such jurisdictions only through registered or licensed brokers or dealers. In addition, in certain states the shares may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and satisfied.

The selling stockholders have informed us that none of them has any agreement or understanding, directly or indirectly, with any person to distribute the shares of common stock. If any selling stockholder notifies us that an arrangement has been entered into with a broker-dealer for the sale of shares through a block trade, special offering or secondary distribution or a purchase by a broker or dealer, we may be required to file a prospectus supplement pursuant to the applicable rules promulgated under the Securities Act.

There can be no assurance that any selling stockholder will sell any or all of the shares of common stock registered pursuant to the shelf registration statement, of which this prospectus is a part.

We have advised the selling stockholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling stockholders and their affiliates. In addition, we will make copies of this prospectus available to the selling stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act. We have agreed to indemnify the selling stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

We agreed to use our best efforts to keep the registration statement of which this prospectus is a part continuously effective, supplemented and amended as required by the Securities Act, in order to permit this prospectus to be usable by the selling stockholders for a period from the date the registration statement becomes effective to, and including, the date upon which no registrable securities are outstanding and constitute “restricted securities” (as defined in Rule 144 under the Securities Act). We will bear all expenses incurred in connection with the performance of our obligations under the Registration Rights Agreement and will reimburse the selling stockholders for the reasonable fees and disbursements of one firm or counsel to act as counsel for the selling stockholders in connection with this offering.

LEGAL MATTERS

The validity of the shares of common stock being offered by this prospectus has been passed upon for us by Fox Rothschild LLP, Minneapolis, Minnesota.

EXPERTS

The financial statements for the years ended December 31, 2017 and 2016 incorporated by reference into this prospectus and registration statement have been audited by EKS&H LLLP, an independent registered public accounting firm, as set forth in their report thereon, dated April 2, 2018, appearing in our Annual Report on Form 10-K for the year ended December 31, 2017 and incorporated by reference into this prospectus and registration statement, and such report is included in reliance upon the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We are currently subject to the information requirements of the Exchange Act and in accordance therewith file periodic reports, proxy statements and other information with the Securities and Exchange Commission. You may read and copy (at prescribed rates) any such reports, proxy statements and other information at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference room. Our SEC filings also are available to you on the SEC's website at <http://www.sec.gov>.

In addition, we maintain a website that contains information regarding our company, including copies of reports, proxy statements and other information we file with the SEC. The address of our website is www.xtantmedical.com. Our website, and the information contained on that site, or connected to that site, are not intended to be part of this prospectus or any prospectus supplement.

This prospectus is part of a registration statement on Form S-1 that we filed under the Securities Act with the SEC. This prospectus, which constitutes a part of that registration statement, does not contain all of the information included in that registration statement and its accompanying exhibits and schedules. For further information with respect to our shares of common stock and us you should refer to that registration statement and its accompanying exhibits and schedules. Statements in this prospectus concerning any document that we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" certain information into this prospectus, which means that we can disclose important information about us by referring you to another document filed separately with the SEC. The information incorporated by reference is considered to be a part of this prospectus. Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus. This means that you must carefully review all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any document previously incorporated by reference have been modified or superseded. However, we undertake no obligation to update or revise any statements we make, except as required by law.

This prospectus incorporates by reference the documents listed below (File No. 001-34951) and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (in each case, other than those documents or the portions of those documents not deemed to be filed) until the offering of the securities under the registration statement is terminated or completed:

- our Annual Report on Form 10-K for the year ended December 31, 2017 filed with the SEC on April 2, 2018 and as amended on a Form 10-K/A filed with the SEC on April 5, 2018;

- our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018 filed with the SEC on May 8, 2018;
- our Amendment No. 1 on Form 10-Q/A, dated March 30, 2018, to Quarterly Report on Form 10-Q for the quarter ended March 31, 2017;
- our Amendment No. 1 on Form 10-Q/A, dated March 30, 2018, to Quarterly Report on Form 10-Q for the quarter ended June 30, 2017;
- our Current Reports on Form 8-K (other than portions thereof furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits accompanying such reports that are related to such items) filed with the SEC on January 2, 2018, January 12, 2018, January 23, 2018, January 31, 2018, February 13, 2018, February 15, 2018, February 16, 2018; May 18, 2018 and May 21, 2018;
- our Definitive Proxy Statement on Schedule 14A filed with the SEC on January 22, 2018;
- all documents filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of the initial filing of the registration statement of which this prospectus is a part and prior to the effectiveness of such registration statement; and
- all documents filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act on or after the date of this prospectus and before we stop offering the securities under this prospectus, provided that all documents “furnished” by us to the SEC and not “filed” are not deemed incorporated by reference herein.

Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained herein, or in any other subsequently filed document that also is or is deemed to be incorporated by reference herein, modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

We will provide without charge to each person, including any beneficial owner, to whom this prospectus is delivered, upon written or oral request of such person, a copy of any or all of the documents incorporated by reference in this prospectus, other than exhibits to such documents unless such exhibits are specifically incorporated by reference into such documents. Requests may be made in writing to:

Xtant Medical Holdings, Inc.
664 Cruiser Lane
Belgrade, Montana 59714
Attn: Corporate Secretary
(406) 388-0480

**DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION
FOR SECURITIES ACT LIABILITY**

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling the registrant, the registrant has been informed that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable.

11,536,773 Shares



Common Stock

PROSPECTUS

, 2018

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution

The following table sets forth the costs and expenses payable by us in connection with the registration of the resale of the shares of common stock being registered hereby. All such expenses are estimated except for the SEC registration fee.

SEC registration fee	\$	9,523
Legal fees and expenses		15,000
Accounting fees and expenses		5,000
Miscellaneous		5,000
*Total	\$	<u>34,523</u>

* None of the expenses listed above will be borne by the selling stockholders.

Item 14. Indemnification of Directors and Officers

Delaware General Corporation Law

Section 145(a) of the General Corporation Law of the State of Delaware, (DGCL), provides that a corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe the person's conduct was unlawful. The termination of any action, suit or proceeding by judgment, order, settlement, conviction or upon a plea of nolo contendere or its equivalent, shall not, of itself, create a presumption that the person did not act in good faith and in a manner which the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had reasonable cause to believe that the person's conduct was unlawful.

Section 145(b) of the DGCL states that a corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against expenses (including attorneys' fees) actually and reasonably incurred by the person in connection with the defense or settlement of such action or suit if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation and except that no indemnification shall be made in respect of any claim, issue or matter as to which the person shall have been adjudged to be liable to the corporation unless and only to the extent that the Delaware Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, the person is fairly and reasonably entitled to indemnity for such expenses as the Delaware Court of Chancery or such other court shall deem proper.

Section 145(c) of the DGCL provides that to the extent that a present or former director or officer of a corporation has been successful on the merits or otherwise in defense of any action, suit or proceeding referred to in subsections (a) and (b) of Section 145, or in defense of any claim, issue or matter therein, such person shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection therewith.

Section 145(d) of the DGCL states that any indemnification under subsections (a) and (b) of Section 145 (unless ordered by a court) shall be made by the corporation only as authorized in the specific case upon a determination that indemnification of the present or former director, officer, employee or agent is proper in the circumstances because the person has met the applicable standard of conduct set forth in subsections (a) and (b) of Section 145. Such determination shall be made with respect to a person who is a director or officer at the time of such determination (1) by a majority vote of the directors who are not parties to such action, suit or proceeding, even though less than a quorum, (2) by a committee of such directors designated by majority vote of such directors, even though less than a quorum, (3) if there are no such directors, or if such directors so direct, by independent legal counsel in a written opinion or (4) by the stockholders.

Section 145(f) of the DGCL states that the indemnification and advancement of expenses provided by, or granted pursuant to, the other subsections of Section 145 shall not be deemed exclusive of any other rights to which those seeking indemnification or advancement of expenses may be entitled under any bylaw, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in such person's official capacity and as to action in another capacity while holding such office.

Section 145(g) of the DGCL provides that a corporation shall have the power to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against any liability asserted against such person and incurred by such person in any such capacity or arising out of such person's status as such, whether or not the corporation would have the power to indemnify such person against such liability under the provisions of Section 145.

Section 145(j) of the DGCL states that the indemnification and advancement of expenses provided by, or granted pursuant to, Section 145 shall, unless otherwise provided when authorized or ratified, continue as to a person who has ceased to be a director, officer, employee or agent and shall inure to the benefit of the heirs, executors and administrators of such a person.

Certificate of Incorporation

We have adopted provisions in our Amended and Restated Certificate of Incorporation that limit director liability to the maximum extent permitted under the DGCL.

Bylaws

Our Second Amended and Restated Bylaws provide for the indemnification of directors and officers to the fullest extent permitted by applicable law.

Indemnification Agreements

We have entered into agreements with our directors and executive officers that require us to indemnify them against certain liabilities that may arise by reason of their status or service as directors or executive officers to the fullest extent not prohibited by Delaware law.

Insurance Policies

We have purchased an insurance policy that purports to insure our directors and officers against certain liabilities incurred by them in the discharge of their functions as directors and officers.

The foregoing description of our Amended and Restated Certificate of Incorporation, Second Amended and Restated Bylaws, and Section 145 of the DGCL is only a summary and is qualified in its entirety by the full text of each of the foregoing.

We have been advised that it is the position of the SEC that insofar as the foregoing provisions may be invoked to disclaim liability for damages arising under the Securities Act, that such provisions are against public policy as expressed in the Securities Act and are therefore unenforceable.

Item 15. Recent Sales of Unregistered Securities

During the past three years, we issued unregistered securities as outlined below. Unless otherwise specifically noted, no commissions were paid in connection with the issuances described below and each issuance was effected pursuant to Section 4(a)(2) of the Securities Act, as a transaction by an issuer not involving any public offering.

On April 17, 2015, we entered into an Amended and Restated Common Stock Purchase Agreement (Purchase Agreement) with Aspire Capital Fund, LLC (Aspire Capital), which provided that, upon the terms and subject to the conditions and limitations set forth therein, Aspire Capital was committed to purchase up to an aggregate of \$10.0 million of shares of our common stock (Purchase Shares) over the 24-month term of the Purchase Agreement. Pursuant to the terms of the Purchase Agreement, we issued 207,182 shares of our common stock (17,265 shares, taking into account the 1-for-12 reverse stock split) (Initial Purchase Shares) to Aspire Capital for \$750,000 in aggregate proceeds. We also issued 154,189 shares of our common stock (12,849 shares, taking into account the 1-for-12 reverse stock split) to Aspire Capital as a commitment fee (Commitment Shares). Subsequent to the issuance of the Initial Purchase Shares and the Commitment Shares, pursuant to the Purchase Agreement, we issued 417,000 shares of our common stock (12,849 shares, taking into account the 1-for-12 reverse stock split) to Aspire Capital for \$1,387,439 in aggregate proceeds. The Purchase Agreement expired in accordance with its terms on April 17, 2017.

On July 31, 2015, in connection with our acquisition of X-spine, we issued 4,242,655 shares of our common stock (353,554 shares, taking into account the 1-for-12 reverse stock split) at an assumed value of \$4.00 (\$48.00, taking into account 1-for-12 reverse stock split) per share to the owners of the issued and outstanding shares of X-spine's capital stock.

Also on July 31, 2015, we issued 6.00% convertible senior unsecured notes due 2021 to qualified institutional buyers for an aggregate principal amount of \$65 million, and on August 10, 2015, we issued additional Notes in the aggregate principal amount of \$3 million pursuant to the initial purchaser's partial exercise of its overallotment option.

On September 4, 2015, we issued 140,053 shares of our common stock (11,671 shares, taking into account the 1-for-12 reverse stock split) to certain directors for aggregate proceeds of \$515,395.

On April 14, 2016, we issued in a private placement to the purchasers an aggregate principal amount of approximately \$2.2 million of 6.00% convertible senior promissory notes due 2021.

On November 17, 2016, we closed a rights offering, pursuant to which we sold an aggregate of 5,055,345 units, consisting of a total of 5,055,345 shares of common stock and 5,055,345 warrants (421,278 units, consisting of a total of 421,278 shares of common stock and 421,278 warrants taking into account the 1-for-12 reverse stock split), with each warrant exercisable to purchase one share of common stock at an exercise price of \$0.90 (\$10.80, taking into account the 1-for-12 reverse stock split) for five years from the date of issuance. The subscription price was \$0.75 per unit, with gross proceeds of approximately \$3.8 million.

Effective January 17, 2017, we issued in a private placement to ROS and Royalty Opportunities an aggregate principal amount of approximately \$1.6 million of 6.00% convertible senior unsecured promissory notes due in 2021. On January 17, 2018, ROS and Royalty Opportunities converted the aggregate principal amount of such notes, plus accrued and unpaid interest, into 2,275,745 shares of our common stock (189,645 shares, taking into account the 1-for-12 reverse stock split).

On February 14, 2018, the \$70.238 million aggregate principal amount of the notes referenced above, plus accrued and unpaid interest, were exchanged for approximately 10.4 million newly-issued shares of our common stock.

Also on February 14, 2018, we entered into a Securities Purchase Agreement with ROS and Royalty Opportunities pursuant to which ROS and Royalty Opportunities purchased from us a total of 945,819 shares of our common stock at a price of \$7.20 per share, for aggregate proceeds of \$6,809,896, with ROS purchasing 603,687 of such shares and Royalty Opportunities purchasing 342,132 of such shares.

Item 16. Exhibits and Financial Statement Schedules

(a) Exhibits

Exhibit No.	Description
2.1	Agreement and Plan of Merger, dated as of June 30, 2010, by and among K-Kitz, Inc., KB Merger Sub, Inc. and Bacterin International, Inc. (filed as Exhibit 2.1 to Form 8-K filed June 30, 2010 and incorporated by reference herein).
2.2	Common Stock Purchase Agreement dated March 16, 2015 by and between Bacterin and Aspire Capital Fund, LLC (filed as Exhibit 10.1 to Form 8-K filed March 17, 2015 and incorporated by reference herein).
2.3	Amended and Restated Common Stock Purchase Agreement dated April 17, 2015 by and between Bacterin and Aspire Capital Fund, LLC (filed as Exhibit 10.23 to Form S-1 filed April 17, 2015 and incorporated by reference herein).
2.4	Stock Purchase Agreement dated July 27, 2015 by and among Bacterin, X-spine Systems, Inc. and the sellers named therein (filed as Exhibit 10.1 to Form 8-K filed July 28, 2015 and incorporated by reference herein).
3.1	Amended and Restated Certificate of Incorporation (filed as Exhibit 3.1 to Form 8-K filed on February 13, 2018 and incorporated by reference herein).
3.2	Second Amended and Restated Bylaws (filed as Exhibit 3.1 to Form 8-K filed February 16, 2018 and incorporated by reference herein).
4.1	Form of Warrant to Purchase Common Stock (filed as Exhibit 4.1 to the Registrant's Form 8-K filed with the SEC on July 31, 2014, and Exhibit 4.1 to the Registrant's Form 8-K filed with the SEC on June 5, 2013 and incorporated by reference herein).
4.2	Form of Warrant Certificate for Warrants underlying Units (filed as Exhibit 4.1 to the Registrant's Form 10-Q filed with the SEC on November 10, 2016 and incorporated by reference herein).
4.3	Form of Common Stock Certificate (filed as Exhibit 4.2 to Form S-1 filed December 21, 2015 and incorporated by reference herein).
4.4	Registration Rights Agreement dated March 16, 2015 by and between Bacterin and Aspire Capital Fund, LLC (filed as Exhibit 4.1 to Form 8-K filed on March 17, 2015 and incorporated by reference herein).
4.5	Registration Rights Agreement dated July 31, 2015 by and among Bacterin, Leerink Partners LLC, OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP (filed as Exhibit 10.3 to Form 8-K filed on August 3, 2015 and incorporated by reference herein).
4.6	Registration Rights Agreement, dated April 14, 2016, among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.4 to Form 8-K filed on April 19, 2016 and incorporated by reference herein).

Exhibit No.	Description
4.7	<u>Registration Rights Agreement (for Common Stock underlying the Indenture Notes), dated January 17, 2017, among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.9 to Form 8-K filed on January 20, 2017 and incorporated by reference herein).</u>
4.8	<u>Registration Rights Agreement (for Common Stock underlying the PIK Notes), dated January 17, 2017, among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.13 to Form 8-K filed on January 20, 2017 and incorporated by reference herein).</u>
4.9	<u>Investor Rights Agreement (for Common Stock issued upon the exchange of the Notes and pursuant to the Private Placement) dated February 14, 2018, by and among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP, ROS Acquisition Offshore LP, Park West Partners International, Limited and Park West Investors Master Fund, Limited (filed as Exhibit 10.3 to Form 8-K filed on February 16, 2018 and incorporated by reference herein).</u>
4.10	<u>Registration Rights Agreement (for Common Stock issued upon the exchange of the Notes and pursuant to the Private Placement) dated February 14, 2018, by and among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP, ROS Acquisition Offshore LP, Telemetry Securities, L.L.C., Bruce Fund, Inc., Park West Investors Master Fund, Limited, and Park West Partners International, Limited (filed as Exhibit 10.4 to Form 8-K filed on February 16, 2018 and incorporated by reference herein).</u>
4.11	<u>Indenture dated July 31, 2015 by and between Bacterin and Wilmington Trust, National Association (filed as Exhibit 10.2 to Form 8-K filed on August 3, 2015 and incorporated by reference herein).</u>
4.12	<u>Amendment Number 1 to Indenture, dated as of August 16, 2017, by and between Xtant Medical Holdings, Inc. and Wilmington Trust, National Association (filed as Exhibit 10.2 to Form 8-K filed on August 17, 2017 and incorporated by reference herein).</u>
4.13	<u>Amendment Number 2 to Indenture, dated as of October 2, 2017, by and between Xtant Medical Holdings, Inc. and Wilmington Trust, National Association (filed as Exhibit 10.2 to Form 8-K filed on October 3, 2017 and incorporated by reference herein).</u>
4.14	<u>Amendment Number 3 to Indenture, dated as of October 31, 2017, by and between Xtant Medical Holdings, Inc. and Wilmington Trust, National Association (filed as Exhibit 10.2 to Form 8-K filed on October 31, 2017 and incorporated by reference herein).</u>
4.15	<u>Amendment Number 4 and Waiver to Indenture, dated as of December 1, 2017, by and between Xtant Medical Holdings, Inc. and Wilmington Trust, National Association (filed as Exhibit 10.2 to Form 8-K filed on December 4, 2017 and incorporated by reference herein).</u>
4.16	<u>Amendment Number 5 to Indenture, dated as of December 29, 2017, by and between Xtant Medical Holdings, Inc. and Wilmington Trust, National Association (filed as Exhibit 10.2 to Form 8-K filed on December 29, 2017 and incorporated by reference herein).</u>
4.17	<u>Amendment Number 6 to Indenture, dated as of January 30, 2018, by and between Xtant Medical Holdings, Inc. and Wilmington Trust, National Association (filed as Exhibit 10.2 to Form 8-K filed on January 31, 2018 and incorporated by reference herein).</u>

Exhibit No.	Description
4.18	Form of 6.00% Convertible Senior Note due 2021 (filed as Exhibit 10.2 to Form 8-K filed on August 3, 2015 and incorporated by reference herein).
4.19	Form of Subscription Rights Statement (filed as Exhibit 4.17 to Form S-1/A filed on April 18, 2018 and incorporated by reference herein).
5.1(1)	Opinion of Fox Rothschild LLP
10.1•	Form of Indemnification Agreement (filed as Exhibit 10.6 to Form 10-Q filed on November 21, 2017 and incorporated by reference herein).
10.2•	Amended and Restated Xtant Medical Equity Incentive Plan (filed as Exhibit 10.8 to Form 10-Q filed on November 16, 2015 and incorporated by reference herein).
10.3•	Form of Stock Option Agreement (filed as Exhibit 10.23 to Form 10-Q filed on May 4, 2012 and incorporated by reference herein).
10.4•	Form of Amended and Restated Restricted Stock Agreement (filed as Exhibit 10.4 to Form 10-K filed on March 24, 2016 and incorporated by reference herein).
10.5•	Daniel Goldberger Separation Agreement (filed as Exhibit 10.1 to Form 8-K filed on January 23, 2017 and incorporated by reference herein).
10.6•	Carl O'Connell Employment Agreement (filed as Exhibit 10.1 to Form 8-K filed on October 6, 2016 and incorporated by reference herein).
10.7•	Amendment No. 1 to Carl O'Connell Employment Agreement, dated effective as of February 17, 2017, between Xtant Medical Holdings, Inc. and Carl O'Connell (filed as Exhibit 10.1 to Form 8-K filed on February 23, 2017 and incorporated by reference herein).
10.8•	Carl O'Connell Stock Option Agreement (filed as Exhibit 10.2 to Form 8-K filed on October 6, 2016 and incorporated by reference herein).
10.9•	Form of Director Agreement (filed as Exhibit 10.3 to Form 10-Q filed on August 10, 2016 and incorporated by reference herein).
10.10	Amended and Restated Credit Agreement dated July 27, 2015 by and between Bacterin and ROS Acquisition Offshore LP (filed as Exhibit 10.2 to Form 8-K filed on July 28, 2015 and incorporated by reference herein).
10.11	Securities Purchase Agreement dated July 27, 2015 by and between Bacterin and the investors named therein (filed as Exhibit 10.4 to Form 8-K filed on July 28, 2015 and incorporated by reference herein).
10.12	Purchase Agreement dated July 27, 2015 by and between Bacterin and Leerink Partners LLC (filed as Exhibit 10.5 to Form 8-K filed on July 28, 2015 and incorporated by reference herein).
10.13	First Amendment to Amended and Restated Credit Agreement, dated March 31, 2016, by and among Bacterin International, as the Borrower, and Orbimed Royalty Opportunities II, LP and ROS Acquisition Offshore LP, as the Lenders (filed as Exhibit 10.1 to Form 8-K filed on April 1, 2016 and incorporated by reference herein).
10.14	Securities Purchase Agreement, dated April 14, 2016, among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on April 19, 2016 and incorporated by reference herein).

Exhibit No.	Description
10.15	<u>Convertible Promissory Note, dated April 14, 2016, made by Xtant Medical Holdings, Inc. in favor of ROS Acquisition Offshore LP (filed as Exhibit 10.2 to Form 8-K filed on April 19, 2016 and incorporated by reference herein).</u>
10.16	<u>Convertible Promissory Note, dated April 14, 2016, made by Xtant Medical Holdings, Inc. in favor of OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.3 to Form 8-K filed on April 19, 2016 and incorporated by reference herein).</u>
10.17	<u>Amendment to Amended and Restated Credit Agreement, dated as of April 14, 2016, by and among Bacterin International, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.5 to Form 8-K filed on April 19, 2016 and incorporated by reference herein).</u>
10.18	<u>Fourth Amendment to Amended and Restated Credit Agreement, dated as of July 29, 2016, by and among Bacterin International, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on August 2, 2016 and incorporated by reference herein).</u>
10.19	<u>Sixth Amendment to Amended and Restated Credit Agreement, dated as of September 27, 2016, by and among Bacterin International, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on September 28, 2016 and incorporated by reference herein).</u>
10.20	<u>Loan and Security Agreement, dated May 25, 2016, among Xtant Medical Holdings, Inc., Bacterin International, Inc., X-spine Systems, Inc., Xtant Medical, Inc. and Silicon Valley Bank (filed as Exhibit 10.1 to Form 8-K filed on May 31, 2016 and incorporated by reference herein).</u>
10.21	<u>First Loan Modification Agreement, dated August 12, 2016, among Xtant Medical Holdings, Inc., Bacterin International, Inc., X-spine Systems, Inc., Xtant Medical, Inc. and Silicon Valley Bank (filed as Exhibit 10.1 to Form 8-K filed on August 16, 2016 and incorporated by reference herein).</u>
10.22	<u>Intellectual Property Security Agreement, dated May 25, 2016, among Xtant Medical Holdings, Inc., Bacterin International, Inc., X-spine Systems, Inc., Xtant Medical, Inc. and Silicon Valley Bank (filed as Exhibit 10.2 to Form 8-K filed on May 31, 2016 and incorporated by reference herein).</u>
10.23	<u>Seventh Amendment to Amended and Restated Credit Agreement, dated as of December 31, 2016, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Form 8-K filed with the SEC on January 6, 2017 and incorporated by reference herein).</u>
10.24	<u>Securities Purchase Agreement, dated January 17, 2017, between Xtant Medical Holdings, Inc. and Bruce Fund, Inc. (filed as Exhibit 10.2 to Form 8-K filed on January 20, 2017 and incorporated by reference herein).</u>
10.25	<u>Securities Purchase Agreement, dated January 17, 2017, between Xtant Medical Holdings, Inc. and Park West Partners International, Limited (filed as Exhibit 10.3 to Form 8-K filed on January 20, 2017 and incorporated by reference herein).</u>
10.26	<u>Securities Purchase Agreement, dated January 17, 2017, between Xtant Medical Holdings, Inc. and Park West Investors Master Fund, Limited (filed as Exhibit 10.4 to Form 8-K filed on January 20, 2017 and incorporated by reference herein).</u>
10.27	<u>Securities Purchase Agreement, dated January 17, 2017, between Xtant Medical Holdings, Inc. and Telemetry Securities, L.L.C. (filed as Exhibit 10.5 to Form 8-K filed on January 20, 2017 and incorporated by reference herein).</u>

Exhibit No.	Description
10.28	<u>Securities Purchase Agreement (for sale of the Indenture Notes), dated January 17, 2017, among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP. (filed as Exhibit 10.6 to Form 8-K filed on January 20, 2017 and incorporated by reference herein).</u>
10.29	<u>Securities Purchase Agreement (for sale of the PIK Notes), dated January 17, 2017, among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.10 to Form 8-K filed on January 20, 2017 and incorporated by reference herein).</u>
10.30	<u>Convertible Promissory Note in the principal amount of \$995,700, dated January 17, 2017, made by Xtant Medical Holdings, Inc. in favor of ROS Acquisition Offshore LP (filed as Exhibit 10.7 to Form 8-K filed on January 20, 2017 and incorporated by reference herein).</u>
10.31	<u>Convertible Promissory Note in the principal amount of \$564,300, dated January 17, 2017, made by Xtant Medical Holdings, Inc. in favor of OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.8 to Form 8-K filed on January 20, 2017 and incorporated by reference herein).</u>
10.32	<u>Convertible Promissory Note in the principal amount of \$42,856.59, dated January 17, 2017, made by Xtant Medical Holdings, Inc. in favor of ROS Acquisition Offshore LP (filed as Exhibit 10.11 to Form 8-K filed on January 20, 2017 and incorporated by reference herein).</u>
10.33	<u>Convertible Promissory Note in the principal amount of \$24,288.41, dated January 17, 2017, made by Xtant Medical Holdings, Inc. in favor of OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.12 to Form 8-K filed on January 20, 2017 and incorporated by reference herein).</u>
10.34	<u>Securities Purchase Agreement, dated as of February 14, 2018, by and among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP, ROS Acquisition Offshore LP (filed as Exhibit 10.2 to Form 8-K filed on February 16, 2018 and incorporated by reference herein).</u>
10.35	<u>Eighth Amendment to Amended and Restated Credit Agreement, dated as of January 13, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on January 20, 2017 and incorporated by reference herein).</u>
10.36	<u>Ninth Amendment to Amended and Restated Credit Agreement, dated as of January 31, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on February 1, 2017 and incorporated by reference herein).</u>
10.37	<u>Tenth Amendment to Amended and Restated Credit Agreement, dated as of February 14, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on February 15, 2017 and incorporated by reference herein).</u>
10.38	<u>Eleventh Amendment to Amended and Restated Credit Agreement, dated as of February 28, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on March 2, 2017 and incorporated by reference herein).</u>

Exhibit No.	Description
10.39	<u>Twelfth Amendment and Waiver to Amended and Restated Credit Agreement, dated as of March 31, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on April 6, 2017 and incorporated by reference herein).</u>
10.40	<u>Thirteenth Amendment and Waiver to Amended and Restated Credit Agreement, dated as of April 30, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on May 4, 2017 and incorporated by reference herein).</u>
10.41	<u>Fourteenth Amendment and Waiver to Amended and Restated Credit Agreement, dated as of May 11, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on May 12, 2017 and incorporated by reference herein).</u>
10.42	<u>Fifteenth Amendment and Waiver to Amended and Restated Credit Agreement, dated as of June 30, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on July 7, 2017 and incorporated by reference herein).</u>
10.43	<u>Sixteenth Amendment and Waiver to Amended and Restated Credit Agreement, dated as of July 15, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on July 20, 2017 and incorporated by reference herein).</u>
10.44	<u>Seventeenth Amendment and Waiver to Amended and Restated Credit Agreement, dated as of August 11, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on August 17, 2017 and incorporated by reference herein).</u>
10.45	<u>Eighteenth Amendment and Waiver to Amended and Restated Credit Agreement, dated as of September 29, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on October 3, 2017 and incorporated by reference herein).</u>
10.46	<u>Nineteenth Amendment to Amended and Restated Credit Agreement, dated as of October 31, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on October 31, 2017 and incorporated by reference herein).</u>

Exhibit No.	Description
10.47	<u>Twentieth Amendment and Waiver to Amended and Restated Credit Agreement, dated as of November 30, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on December 4, 2017 and incorporated by reference herein).</u>
10.48	<u>Twenty-First Amendment to Amended and Restated Credit Agreement, dated as of December 28, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on December 29, 2017 and incorporated by reference herein).</u>
10.49	<u>Twenty-Second Amendment to Amended and Restated Credit Agreement, dated as of January 30, 2018, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on January 31, 2018 and incorporated by reference herein).</u>
10.50	<u>Twenty-Third Amendment to Amended and Restated Credit Agreement, dated as of February 14, 2018, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on February 16, 2018 and incorporated by reference herein).</u>
10.51	<u>Waiver Letter, dated as of March 31, 2017, by and among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.2 to Form 8-K filed on April 6, 2017 and incorporated by reference herein).</u>
10.52	<u>Waiver, dated as of March 31, 2017, by ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.3 to Form 8-K filed on April 6, 2017 and incorporated by reference herein).</u>
10.53	<u>Omnibus Waiver, dated as of July 15, 2017, by ROS Acquisition Offshore LP, OrbiMed Royalty Opportunities II, LP, Bruce Fund Inc., Park West Partners International, Limited, Park West Investors Master Fund, Limited and Telemetry Securities, L.L.C. (filed as Exhibit 10.2 to Form 8-K filed on July 20, 2017 and incorporated by reference herein).</u>
10.54	<u>Amendment and Waiver, dated as of August 15, 2017, by and among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.3 to Form 8-K filed on August 17, 2017 and incorporated by reference herein).</u>
10.55	<u>Second Amendment and Waiver, dated as of September 29, 2017, by and among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.3 to Form 8-K filed on October 3, 2017 and incorporated by reference herein).</u>
10.56	<u>Third Amendment and Waiver, dated as of October 31, 2017, by and among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.3 to Form 8-K filed on October 31, 2017 and incorporated by reference herein).</u>

Exhibit No.	Description
10.57	Waiver, dated as of November 14, 2017, by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on November 14, 2017 and incorporated by reference herein).
10.58	Fourth Amendment and Waiver, dated as of November 30, 2017, by and among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.3 to Form 8-K filed on December 4, 2017 and incorporated by reference herein).
10.59	Fifth Amendment and Waiver, dated as of December 28, 2017, by and among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.3 to Form 8-K filed on December 29, 2017 and incorporated by reference herein).
10.60	Sixth Amendment, dated as of January 17, 2018, by and among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to Form 8-K filed on January 23, 2018, and incorporated by reference herein).
10.61	Sixth Amendment and Waiver, dated as of January 30, 2018, by and among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.3 to Form 8-K filed on January 31, 2018, and incorporated by reference herein).
10.62	Forbearance Agreement, dated April 17, 2017, among Xtant Medical Holdings, Inc., Bacterin International, Inc., X-spine Systems, Inc., Xtant Medical, Inc. and Silicon Valley Bank (filed as Exhibit 10.1 to Form 8-K filed on April 19, 2017 and incorporated by reference herein).
10.63	Forbearance Agreement, dated April 21, 2017, among Xtant Medical Holdings, Inc., Bacterin International, Inc., X-spine Systems, Inc., Xtant Medical, Inc. and Silicon Valley Bank (filed as Exhibit 10.1 to Form 8-K filed on April 24, 2017 and incorporated by reference herein).
10.64	Forbearance Agreement, dated April 30, 2017, by and among Xtant Medical Holdings, Inc., Bacterin International, Inc., X-spine Systems, Inc., Xtant Medical, Inc. and Silicon Valley Bank (filed as Exhibit 10.2 to Form 8-K filed on May 4, 2017 and incorporated by reference herein).
10.65	Agreement, dated May 8, 2017, between Xtant Medical Holdings, Inc. and Aurora Management Partners Inc. (filed as Exhibit 10.2 to Form 8-K filed on May 12, 2017 and incorporated by reference herein).
10.66	Restructuring and Exchange Agreement, dated January 11, 2018, by and among ROS Acquisition Offshore LP, OrbiMed Royalty Opportunities II, LP, Bruce Fund, Inc., Park West Partners International, Limited, Park West Investors Master Fund, Limited, and Telemetry Securities, L.L.C. (filed as Exhibit 10.1 to Form 8-K filed on January 12, 2018 and incorporated by reference herein).
10.67*	Amendment No. 2 to Employment Agreement, dated as of May 15, 2018, between Xtant Medical Holdings, Inc. and Carl O'Connell.
10.68*	Letter Agreement, dated as of May 21, 2018, between Xtant Medical Holdings, Inc. and Michael Mainelli.
21.1	Subsidiaries of the Registrant (filed as Exhibit 21.1 to Form S-1/A filed on August 25, 2015 and incorporated by reference herein).
23.1*	Consent of Independent Registered Public Accounting Firm, EKS&H LLLP
23.2(1)	Consent of Fox Rothschild LLP (included in Exhibit 5.1)
24.1(1)	Power of Attorney (included on signature page)

• Indicates a management contract or compensatory plan.

* Filed herewith.

** Furnished herewith.

(1) Previously filed

(b) Financial Statement Schedules

Schedules have been omitted because the information required to be set forth therein is not applicable or is shown in the financial statements or notes thereto.

Item 17. Undertakings

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) shall not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-1 and has duly caused this Pre-Effective Amendment No. 2 to this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Belgrade, State of Montana on May 30, 2018.

XTANT MEDICAL HOLDINGS, INC.

By /s/ Carl D. O'Connell
Carl D. O'Connell
Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Pre-Effective Amendment No. 2 to this registration statement has been signed by the following persons in the capacities and on the dates indicated:

Name and Signature	Title	Date
<u>/s/ Carl D. O'Connell</u> Carl D. O'Connell	Chief Executive Officer and Director (principal executive officer)	May 30, 2018
<u>/s/ Laura Kendall</u> Laura Kendall	Deputy Chief Restructuring Officer (principal financial and accounting officer)	May 30, 2018
<u>*</u> Jeffrey Peters	Chairman of the Board	May 30, 2018
<u>*</u> John K. Bakewell	Director	May 30, 2018
<u>*</u> Michael Eggenberg	Director	May 30, 2018
<u>*</u> Michael Mainelli	Director	May 30, 2018
<u>*</u> Robert McNamara	Director	May 30, 2018
<u>*</u> Matthew Rizzo	Director	May 30, 2018
* By: <u>/s/ Carl D. O'Connell</u> Carl D. O'Connell	Attorney-in-Fact	May 30, 2018

**AMENDMENT NO. 2
TO
EMPLOYMENT AGREEMENT**

This Amendment No. 2 to Employment Agreement (this "Amendment"), between Xtant Medical Holdings, Inc., a Delaware corporation (the "Company"), and Carl O'Connell, an individual ("Employee"), is entered into effective as of May 15, 2018 (the "Effective Date"), and amends that certain Employment Agreement, effective as of October 6, 2016, as amended on February 17, 2017 (as amended, the "Agreement"). Capitalized terms used but not otherwise defined herein shall have the meanings set forth in the Agreement.

1. Severance. Sections 12B and 12C of the Agreement are hereby amended in its entirety as follows:

B. Termination Without Cause or Resignation for Good Reason. If the Company terminates Employee's employment without Cause (defined below) or Employee resigns for Good Reason (defined below), Employee shall be entitled to receive continuing bi-weekly payments of severance pay at a rate equal to Employee's Base Salary, as then in effect, for twelve (12) months following the date of termination of employment, less all required tax withholdings and other applicable deductions, payable in accordance with the Company's standard payroll procedures; provided that (1) the first payment shall include any amounts that would have been paid to Employee if payment had commenced on the date of separation from service; and (2) Employee shall not be required to execute a release of any claims arising from the Company's failure to comply with its obligations under Paragraph 12A. In addition, during the twelve (12) months following the date of termination of employment, with respect to group health benefits, Employee (and his dependents) may elect, in accordance with and subject to the Consolidated Omnibus Budget Reconciliation Act of 1985 ("COBRA") or similar state law, to remain covered under the Company's group health plan for the period mandated by COBRA or similar state law. If Employee timely and effectively elects such continuation coverage, the Company will pay the premiums for such coverage of Employee (and his dependents, as applicable) through such twelve-month period; provided that the Company's obligation to make such payments shall immediately expire if Employee ceases to be eligible for continuation coverage under COBRA or similar state law or otherwise terminates such coverage. Notwithstanding the foregoing, no payments under this Paragraph 12B will be paid unless the Employee executes and does not revoke a Separation Agreement and Release in the form provided by the Company and all rescission periods have expired without any actual or attempted rescission. Subject to the foregoing, any payments due under this Paragraph 12B shall commence within sixty (60) days of Employee's termination of employment, provided that if such sixty (60)-day period spans two calendar years, payments shall commence in the latter calendar year.

C. Termination Upon a Change of Control. If the Company or any successor in interest to the Company terminates Employee's employment within three (3) months before or twelve (12) months after a Change of Control (defined below), Employee shall be entitled to receive (i) his accrued but unpaid Base Salary and other benefits earned under any Company-provided plans, policies and arrangements for the period preceding the effective date of the termination of employment, (ii) continuing bi-weekly payments of severance pay at a rate equal to Employee's Base Salary, as then in effect, for twelve (12) months following the date of termination of employment, less all required tax withholdings and other applicable deductions, payable in accordance with the Company's standard payroll procedures, and (iii) the pro-rated amount of any unpaid bonus for the calendar year in which the Change of Control occurs, assuming 100% achievement of bonus objectives; provided that the first payment shall include any amounts that would have been paid to Employee if payment had commenced on the date of separation from service; and further provided that Employee shall not be required to execute a release of any claims arising from the Company's failure to comply with its obligations under Paragraph 12A. In addition, during the twelve (12) months following the date of termination of employment, with respect to group health benefits, Employee (and his dependents) may elect, in accordance with and subject to the COBRA or similar state law, to remain covered under the Company's group health plan for the period mandated by COBRA or similar state law. If Employee timely and effectively elects such continuation coverage, the Company will pay the premiums for such coverage of Employee (and his dependents, as applicable) through such twelve-month period; provided that the Company's obligation to make such payments shall immediately expire if Employee ceases to be eligible for continuation coverage under COBRA or similar state law or otherwise terminates such coverage. The payments described in this Paragraph 12C are in lieu of, and not in addition to, the payments described in Paragraph 12B, it being understood by Employee that he shall be paid only one severance. Notwithstanding the foregoing, no payments under this Paragraph 12B will be paid unless the Employee executes and does not revoke a Separation Agreement and Release in the form provided by the Company and all rescission periods have expired without any actual or attempted rescission. Subject to the foregoing, any payments due under this Paragraph 12C shall commence within sixty (60) days of Employee's termination of employment, provided that if such sixty (60)-day period spans two calendar years, payments shall commence in the latter calendar year. A Change of Control may also accelerate vesting under the Option as provided in Section 2D.

2. Miscellaneous.

(a) Continuing Validity. Except as expressly modified by this Amendment, the Agreement remains in full force and effect.

(b) Counterparts. This Amendment may be executed in two or more counterparts and by electronic signature, each of which shall be deemed an original and all of which shall together constitute one and the same instrument.

IN WITNESS WHEREOF, and intending to be legally bound, the parties have executed this Amendment as of the date first written above.

EMPLOYEE

XTANT MEDICAL HOLDINGS, INC.

Print Name: Carl O'Connell

Print Name: Jeff Peters

Signature: /s/ Carl O'Connell

Signature: /s/ Jeff Peters

Date: May 15, 2018

Title: Chairman of the Board

Date: May 15, 2018

XTANT MEDICAL HOLDINGS, INC.

664 Cruiser Lane
Belgrade, MT 59714

May 21, 2018

Michael Mainelli
11512 Amalfi Way
Estero, FL 33928

Re: Engagement as Board Advisor

Dear Mike:

On behalf of the Board of Directors of Xtant Medical Holdings, Inc. (the "Company"), I am pleased to provide you with this letter memorializing our agreement to engage you to serve as an advisor to the Board of Directors (the "Board") of the Company. This letter sets forth each of our respective rights and obligations with regard to such engagement.

Your specific duties shall be defined in a Scope of Work to be agreed upon between you and the Chairman of the Board, and such additional duties as may be requested from time to time by the Chairman of the Board. We anticipate that you will devote on average three days per week to your duties hereunder during the term of this letter. In all cases, you shall report only to and be under the supervision of the Chairman of the Board.

You shall be compensated at a rate of \$2,600 per day, billed in half-day increments, which shall be payable monthly within fifteen (15) days of receipt of an invoice from you. In no event shall your compensation hereunder exceed \$110,000. For the avoidance of doubt, this Engagement as a Board Advisor does not change your role and compensation as a member of the Board of Directors of the Company. You will not be eligible to serve on the Board's Audit Committee during the term of your engagement hereunder, and you will resign from the Audit Committee.

The Company will reimburse you for all reasonable travel and other expenses incurred at the Company's request by you in connection with the performance of your duties hereunder upon receipt of documentation therefor in accordance with the Company's regular reimbursement procedures and practices in effect from time to time. Except as provided herein, the Company is not providing you any other or additional "fringe" benefits.

The term of your engagement shall commence on the date of this letter and shall continue for a period of three (3) months. The term may be renewed only upon the mutual written agreement of the Company and you. Your engagement and this letter may be terminated at any time by either party upon fifteen (15) days' written notice to the other party. Upon termination you shall be entitled to your compensation earned prior thereto, and any unreimbursed expenses incurred prior to such termination date.

You shall not use for your personal benefit, or disclose, communicate or divulge to, or use for the direct or indirect benefit of any person, firm, association or company other than the Company, any “Confidential Information,” which term shall mean any information regarding the business methods, business policies, policies, procedures, techniques, research or development projects or results, historical or projected financial information, budgets, trade secrets, or other knowledge or processes of or developed by the Company or any names and addresses of customers or clients or any data on or relating to past, present or prospective customers or clients of the Company or any other confidential information relating to or dealing with the business operations or activities of the Company, made known to you or learned or acquired by you while engaged by the Company; provided, however, that Confidential Information shall not include information otherwise lawfully known generally by or readily accessible to the trade or the general public. At no time shall you, directly or indirectly, remove or cause to be removed from the premises of the Company or any subsidiary any memorandum, note, list, record, file, document or other paper, equipment or any like item relating to its business (including copies, extracts and summaries thereof) except in furtherance of the performance of your duties hereunder. The foregoing provisions of this paragraph shall apply during and after the period when you are engaged by the Company and shall be in addition to (and not a limitation of) any legally applicable protections of the Company’s interest in confidential information, trade secrets and the like.

As used in this letter, “Inventions” means any inventions, discoveries, improvements and ideas (whether or not they are in writing or reduced to practice) or works of authorship (whether or not they can be patented or copyrighted) that you make, author, or conceive (either alone or with others) and that both: (a) result from any work you perform for the Company; and (b) relate in any way to the Company’s business, products or services, past, present, anticipated or under development. You agree that all Inventions made by you during or within six months after the term of this letter will be the Company’s sole and exclusive property. You will assign (and you hereby assign) to the Company all of your rights to the Invention, any applications you make for patents or copyrights in any country, and any patents or copyrights granted to you in any country. You represent that, except as previously disclosed to the Company in writing, as of the date of this letter, you do not have any rights under, and will not make any claim against the Company with respect to, any inventions, discoveries, improvements, ideas or works of authorship which would be Inventions if made, conceived, authored or acquired by you during the term of this letter. To the extent that any Invention qualifies as “work made for hire” as defined in 17 U.S.C. § 101 (1976), as amended, such Invention shall constitute “work made for hire” and, as such, shall be the exclusive property of the Company.

Your engagement hereunder shall be as an independent contractor, and in no event shall you be deemed to be an employee of the Company.

This letter contains the entire understanding among the parties hereto with respect to the subject matter hereof, and supersedes all prior and contemporaneous agreements and understandings, inducements or conditions, express or implied, oral or written, except as herein contained. The express terms hereof control and supersede any course of performance and/or usage of the trade inconsistent with any of the terms hereof. This letter may not be modified or amended other than by an agreement in writing.

This letter shall be construed in accordance with the laws of the State of Delaware, without regard to the application of the principles of conflicts of laws of Delaware or any other jurisdiction.

This letter may be executed in counterparts, each of which will be deemed an original. The counterparts may be evidenced by facsimile or PDF and each such facsimile or PDF will be deemed an original, will be binding upon the parties for all purposes herein, and, together with any other counterpart, will constitute one and the same instrument.

I hope the above accurately captures the terms of our engagement. If so, please countersign this letter as indicated below indicating your agreement to be bound by the terms of this letter.

XTANT MEDICAL HOLDINGS, INC.

By: /s/ Jeff Peters
Name: Jeff Peters
Title: Chairman of the Board

Acknowledged and Agreed:

/s/ Michael Mainelli
Michael Mainelli

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Xtant Medical Holdings, Inc.:

We consent to the reference to our firm under the caption “Experts” in the Registration Statement (Form S-1) for the registration of 11,536,773 shares of common stock and the incorporation by reference therein of our report dated April 2, 2018, with respect to the consolidated financial statements of Xtant Medical Holdings, Inc. included in its Annual Report on Form 10-K for the year ended December 31, 2017, filed with the Securities and Exchange Commission.

/s/ EKS&H LLLP

Denver, Colorado
May 30, 2018
