

PROSPECTUS SUPPLEMENT No. 1  
To Prospectus dated October 31, 2016

## XTANT MEDICAL HOLDINGS, INC.

Subscription Rights to Purchase Up to 15,000,000 Units  
Consisting of an Aggregate of Up to 15,000,000 Shares of Common Stock  
and Warrants to Purchase Up to 15,000,000 Shares of Common Stock  
at a Subscription Price of \$0.75 Per Unit

This Prospectus Supplement No. 1 amends and supplements the prospectus dated October 31, 2016, or the Prospectus, which forms a part of our Registration Statement on Form S-1 (Registration No. 333-213350). This Prospectus Supplement is being filed to amend and supplement the information included or incorporated by reference in the Prospectus with the information contained in this Prospectus Supplement.

The Prospectus and this Prospectus Supplement relate to our distribution to holders of our Common Stock and to holders of our outstanding convertible notes, at no charge, non-transferable subscription rights to purchase units. Each unit, which we refer to as a Unit, consists of one share of Common Stock and one tradable warrant representing the right to purchase one share of Common Stock, which we refer to as the Warrants. We refer to the offering that is the subject of the Prospectus and this Prospectus Supplement as the Rights Offering.

In the Rights Offering, holders received two subscription rights for each share of Common Stock, or each share of Common Stock underlying our convertible notes, owned at 5:00 PM Eastern Time, on October 21, 2016, the record date of the Rights Offering. The Rights Offering commenced on October 31, 2016, and the subscription rights will expire if they are not exercised by 5:00 PM Eastern Time, on Monday, November 14, 2016. We may extend the Rights Offering for additional periods in our sole discretion.

On November 9, 2016, we reduced the Subscription Price from \$0.90 per Unit to \$0.75 per Unit, the exercise price of the Warrants from \$1.08 per share to \$0.90 per share, and the threshold price above which we may redeem the Warrants from \$2.70 per share to \$2.25 per share. The subscription price per Unit for any subscribers who receive Pre-Funded Warrants in lieu of common stock will be \$0.74. In all other respects, the terms of the Rights Offering remain as set forth in the Prospectus.

Holders of the Subscription Rights who have already exercised their Subscription Rights at \$0.90 per Unit will be considered to have exercised their Subscription Rights at \$0.75 per Unit and will receive an appropriate refund as soon as practicable after the termination or expiration of the Rights Offering, without interest or penalty.

The Rights Offering is being conducted on a best-efforts basis. There is no minimum amount of proceeds necessary in order for us to close the Rights Offering.

We have engaged Maxim Group LLC to act as dealer-manager in the Rights Offering.

**Investing in our securities involves a high degree of risk. See the section entitled "Risk Factors" beginning on page 27 of the Prospectus and in the documents we incorporate by reference into the Prospectus. You should carefully consider these risk factors, as well as the information contained in or incorporated by reference into the Prospectus, before you invest.**

Our Common Stock is listed on the NYSE MKT under the symbol "XTNT." On November 8, 2016, the last reported sale price of our Common Stock was \$0.76. We will seek to have the Warrants trade on the over-the-counter market, or the OTCBB promptly after the expiration of the Subscription Rights. If we regain compliance with NYSE MKT minimum listing criteria and the Warrants are eligible for listing on NYSE MKT, we intend to apply to list the Warrants on NYSE MKT. There is no guarantee that the Warrants will be accepted for trading on the OTCBB or, in the future, accepted for listing on NYSE MKT. The Subscription Rights are non-transferable and will not be listed for trading on NYSE MKT or any other stock exchange or market. You are urged to obtain a current price quote for our Common Stock before exercising your Subscription Rights.

	Per Unit	Total(2)
Subscription price	\$0.750	\$11,250,000
Dealer-Manager fees and expenses(1)	\$0.068	\$1,012,500
Proceeds to us, before expenses	\$0.682	\$10,237,500

(1) In connection with this Rights Offering, we have agreed to pay to the dealer-manager a cash fee equal to 7% of the gross proceeds received by us directly from exercises of Subscription Rights. We will reimburse the dealer-manager up to \$75,000 for expenses incurred in connection with the Rights Offering. We advanced \$30,000 of this \$75,000 allowance to Maxim Group LLC upon its engagement as a dealer-manager; provided that Maxim Group LLC will promptly reimburse to us any portion of the advance not used for actual out-of-pocket expenses. See "Plan of Distribution."

(2) Assumes the Rights Offering is fully subscribed, but excludes proceeds from the exercise of Warrants included within the Units.

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of the Prospectus or this Prospectus Supplement. Any representation to the contrary is a criminal offense.**

*Dealer-Manager*

**Maxim Group LLC**

The date of this Prospectus Supplement is November 9, 2016

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This Prospectus Supplement No. 1 amends and supplements the Prospectus to reflect the reduction of the Subscription Price of the non-transferable Subscription Rights from \$0.90 per Unit to \$0.75 per Unit and to make related changes. All references to the price per Unit of \$0.90 are hereby amended to \$0.75 per Unit. All references to the Warrant exercise price of \$1.08 per share are hereby amended to \$0.90 per share.

After the one-year anniversary of issuance, we may redeem the Warrants for \$0.01 per Warrant if the volume weighted average price of our Common Stock is above a threshold price equal to 300% of the Subscription Price for each of 10 consecutive trading days. All references to the threshold price of \$2.70 per share are hereby amended to \$2.25 per share. The subscription price per Unit for any subscribers receiving Pre-Funded Warrants in lieu of Common Stock equals the Subscription Price for the other Units sold in the Rights Offering, less the \$0.01 exercise price for each Pre-Funded Warrant. All references to \$0.89 are hereby amended to \$0.74.

The Use of Proceeds, Capitalization, Dilution and Market Price of and Dividends on Our Common Stock sections on pages 35 through and 38 of the Prospectus are hereby replaced by the following new Use of Proceeds, Capitalization, Dilution and Market Price of and Dividends on Our Common Stock sections (which reflect the change to the Subscription Price of the non-transferable Subscription Rights).

This Prospectus Supplement No. 1 should be read in conjunction with and is qualified by reference to the Prospectus, except to the extent that the information provided by this Prospectus Supplement No. 1 supersedes the information contained in the Prospectus.

## USE OF PROCEEDS

Assuming that all Units are sold in the Rights Offering and no elections to receive Pre-Funded Warrants are made, we estimate that the gross proceeds from the Rights Offering will be approximately \$11.3 million and the net proceeds from the Rights Offering will be approximately \$10.2 million, based on a Subscription Price of \$0.75 per Unit, after deducting fees and expenses payable to the dealer-manager, and after deducting other expenses payable by us and excluding any proceeds received upon exercise of any Warrants issued in the Rights Offering.

We intend to use the net proceeds from this Rights Offering to provide equity capital to support the continuing execution of the Company's growth strategy, specifically to increase surgical instruments and fixation and biologics inventory, diversify our supply of donor tissue, expand our processing capabilities and develop a hybrid sales force, for general corporate purposes, including research and development, business development and operational purposes.

Below is our estimate of how we expect the proceeds to be used if we sell 25%, 50%, 75% or the entire Rights Offering:

<b>Use of Proceeds</b>	<b>Sale of 25% of the Offering</b>	<b>Sale of 50% of the Offering</b>	<b>Sale of 75% of the Offering</b>	<b>Sale of 100% of the Offering</b>
Gross Proceeds	\$ 2,812,500.00	\$ 5,625,000.00	\$ 8,437,500.00	\$ 11,250,000.00
Offering expenses	\$ 320,000.00	\$ 570,000.00	\$ 810,000.00	\$ 1,012,500.00
Net proceeds	\$ 2,492,500.00	\$ 5,055,000.00	\$ 7,627,500.00	\$ 10,237,500.00
Equity Capital Support	\$ 1,500,000.00	\$ 2,750,000.00	\$ 4,000,000.00	\$ 5,500,000.00
General Corporate	\$ 992,500.00	\$ 2,305,000.00	\$ 3,627,500.00	\$ 4,737,500.00

Our management will have broad discretion in the application of the net proceeds from this offering, and investors will be relying on the judgment of our management with regard to the use of these net proceeds.

## CAPITALIZATION

The following table presents our cash, cash equivalents and capitalization, as of June 30, 2016:

- on an actual basis; and
- on a pro forma as adjusted basis to give further effect to the sale by us in this Rights Offering of maximum of 60,983,049 Units (consisting of 60,983,049 shares of our Common Stock (assuming no Pre-Funded Warrants) and Warrants to purchase an aggregate of 60,983,049 shares of Common Stock upon exercise), at the Subscription Price of \$0.75 per Unit, and our receipt of the net proceeds from that sale after deducting estimated offering expenses.

The table below does not reflect the exercise of Warrants issued in connection with the Rights Offering. The pro forma as adjusted information set forth below assumes equity accounting for the Warrants, is illustrative only and will be adjusted based on the Units sold. You should read this information in conjunction with our consolidated financial statements and notes thereto incorporated by reference into this prospectus.

	As of June 30, 2016 (Unaudited)	
	Actual	Pro Forma as Adjusted
Cash, cash equivalents and trade accounts receivable	\$ 2,217,405	\$ 12,279,905
<b>Long-term debt:</b>		
Total lease obligations (less current portion)	757,137	757,137
Long-term debt (less issuance costs)	46,655,722	46,655,722
6.00% convertible senior notes due 2021	68,792,700	68,792,700
Total long-term debt	116,205,559	116,205,559
<b>Stockholders' equity</b>		
Preferred stock, \$0.000001 par value per share; 5,000,000 shares authorized; no shares issued and outstanding, actual and pro forma	-	-
Common Stock, \$0.000001 par value per share; 95,000,000 shares authorized; 12,135,150 actual and 27,135,150 pro forma as adjusted issued and outstanding	11	26
Additional paid-in capital	82,603,270	92,665,755
Accumulated deficit	(83,099,619)	(83,099,619)
Total stockholders' (deficit) equity	(496,338)	9,566,162
Total capitalization	\$ 115,709,221	\$ 125,771,721

The number of outstanding shares of Common Stock in the table above excludes, as of June 30, 2016:

- 562,206 shares issuable upon the exercise of outstanding stock options with a weighted average exercise price of \$10.83 per share;
- 1,235,986 shares issuable upon the exercise of outstanding warrants with a weighted average exercise price of \$7.65 per share;
- Approximately 530,000 shares available for issuance under our Amended and Restated Equity Incentive Plan;
- 1,071,629 shares reserved for issuance pursuant to a common stock purchase agreement with Aspire Capital Fund, LLC; and
- 22,396,279 shares reserved for issuance upon conversion of the notes.

## DILUTION

Purchasers of our Common Stock in the Rights Offering (and upon exercise of the Warrants issued pursuant to this Rights Offering) will experience an immediate dilution of the net tangible book value per share of our Common Stock. Our net tangible book value as of June 30, 2016 was negative \$38.6, or \$(3.18) per share of our Common Stock. Net tangible book value per share is equal to our total net tangible book value, which is our total tangible assets less our total liabilities, divided by the number of shares of our outstanding Common Stock. Dilution per share equals the difference between the amount per share paid by purchasers of shares of Common Stock in the Rights Offering and the net tangible book value per share of our Common Stock immediately after the Rights Offering.

Based on the sale by us in this Rights Offering of a maximum of 15,000,000 Units (consisting of 15,000,000 shares of our Common Stock (assuming no Pre-Funded Warrants) and Warrants to purchase an aggregate of 15,000,000 shares of Common Stock upon exercise), at the Subscription Price of \$0.75 per Unit, and after deducting estimated offering expenses and dealer-manager fees and expenses payable by us of \$1.1 million, and the application of the estimated \$10.2 million of net proceeds from the Rights Offering, assuming equity accounting for the Warrants, our pro forma net tangible book value as of June 30, 2016 would have been approximately negative \$28.4 million, or \$(0.47) per share. This represents an immediate increase in pro forma net tangible book value to existing stockholders of \$2.71 per share and an immediate dilution to purchasers in the Rights Offering of \$3.18 per share.

The dilution calculations in this section take into consideration Units offered to our holders of convertible notes. As of November 8, 2016, there was \$70,238,167 of outstanding convertible notes (\$68,000,000 of which converts at \$3.883 per share (for a total of 17,511,108 shares) and \$2,238,167 of which converts at \$2.90 per share (for a total of 771,781 shares)). Each holder of an outstanding convertible note will receive two Subscription Rights for each whole share of our Common Stock as if each of such convertible notes had been converted immediately prior to the Record Date for the Rights Offering.

The following table illustrates this per-share dilution on a pro forma basis, assuming a fully subscribed for Rights Offering of 15,000,000 Units at the Subscription Price of \$0.75 per Unit (assuming no Pre-Funded Warrants and excluding any issuance of shares of Common Stock upon exercise of Warrants):

Subscription Price		\$	0.75
Net tangible book value per share as of June 30, 2016, before Rights Offering	\$	(3.18)	
Increase in net tangible book value per share attributable to Rights Offering	\$	2.71	
Pro forma net tangible book value per share as of June 30, 2016, after giving effect to Rights Offering		(0.47)	
Dilution in net tangible book value per share to purchasers		\$	0.28

The information above is as of June 30, 2016 and excludes:

- 562,206 shares issuable upon the exercise of outstanding stock options with a weighted average exercise price of \$10.83 per share;
- 1,235,986 shares issuable upon the exercise of outstanding warrants with a weighted average exercise price of \$7.65 per share;
- Approximately 530,000 shares available for issuance under our Amended and Restated Equity Incentive Plan;
- 1,071,629 shares reserved for issuance pursuant to a common stock purchase agreement with Aspire Capital Fund, LLC; and
- 22,396,279 shares reserved for issuance upon conversion of the notes.

To the extent that outstanding options or warrants are exercised, the investor purchasing our Common Stock in this offering will experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations. To the extent that additional capital is raised through the sale of securities, the issuance of those securities could result in further dilution to our stockholders.

## MARKET PRICE OF AND DIVIDENDS ON OUR COMMON STOCK

### Market Information

Our Common Stock is listed on NYSE MKT under the ticker symbol “XTNT.” From April 9, 2015 until October 19, 2015, our Common Stock traded on the OTCQX marketplace under the ticker symbol “BONE,” and from March 7, 2011 to April 8, 2015, our Common Stock was listed on NYSE MKT under the ticker symbol “BONE.” The following table sets forth the range of high and low prices per share of our Common Stock for each quarter, as reported by NYSE MKT and the OTCQX marketplace, as applicable, for the periods indicated below. Prices have been adjusted to reflect the Company’s July 25, 2014 1:10 reverse stock split.

	High	Low
First Quarter 2014 (January 1, 2014 – March 31, 2014)	\$ 14.10	\$ 4.80
Second Quarter 2014 (April 1, 2014 – June 30, 2014)	\$ 8.50	\$ 6.30
Third Quarter 2014 (July 1, 2014 – September 30, 2014)	\$ 7.40	\$ 4.07
Fourth Quarter 2014 (October 1, 2014 – December 31, 2014)	\$ 4.75	\$ 2.19
First Quarter 2015 (January 1, 2015 – March 31, 2015)	\$ 4.50	\$ 2.75
Second Quarter 2015 (April 1, 2015 – June 30, 2015)	\$ 4.49	\$ 2.55
Third Quarter 2015 (July 1, 2015 – September 30, 2015)	\$ 4.49	\$ 2.70
Fourth Quarter 2015 (October 1, 2015 – December 31, 2015)	\$ 3.50	\$ 2.28
First Quarter 2016 (January 1, 2016 – March 31, 2016)	\$ 3.75	\$ 2.02
Second Quarter 2016 (April 1, 2016 – June 30, 2016)	\$ 2.72	\$ 1.51
Third Quarter 2016 (July 1, 2016 – September 30, 2016)	\$ 1.98	\$ 0.93
Fourth Quarter 2016 (October 1, 2016 – through November 8, 2016)	\$ 1.30	\$ 0.61

### Holders of Record

As of November 8, 2016, we had 212 holders of record.

### Dividends

We have not paid any cash dividends and do not expect to do so in the foreseeable future. In addition, our amended and restated credit agreement with ROS precludes us from paying dividends.