

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

Post-effective Amendment No. 1
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 No.)

**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)

**John Gandolfo
Chief Financial 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:

**Travis Leach
Ballard Spahr LLP
One East Washington Street, Suite 2300
Phoenix, Arizona 85004
(602) 798-5444**

Approximate date of commencement of proposed sale to the public: As soon as practicable after this registration statement becomes effective.

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 statement for the same offering.

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

- | | | | |
|-------------------------|--|---------------------------|--------------------------|
| Large accelerated filer | <input type="checkbox"/> | Accelerated filer | <input type="checkbox"/> |
| Non-accelerated filer | <input type="checkbox"/> (Do not check if a smaller reporting company) | Smaller Reporting Company | <input type="checkbox"/> |

DEREGISTRATION OF UNSOLD SECURITIES

On August 26, 2016, Xtant Medical Holdings, Inc. (the “Company”), filed a registration statement on Form S-1 (File No. 333-213350) (the “Registration Statement”) ,with respect to the registration of up to 15,000,000 units (“Units”), each Unit consisting of one share of common stock, par value \$0.000001 per share, and a warrant (“Warrants”) to purchase one additional share of common stock, issuable upon exercise of non-transferable subscription rights to purchase Units offered by the Company (the “Rights Offering”) to holders of its common stock and to holders of its outstanding convertible notes. The Registration Statement also covered 15,000,000 shares of common stock issuable upon exercise of the Warrants included in the Units (the “Warrant Shares”). The Registration Statement was declared effective on October 31, 2016. As reported in its Current Report on Form 8-K filed November 17, 2016, the Company concluded the Rights Offering on November 14, 2016, and subscription rights for an aggregate of 5,055,345 Units were exercised by holders of such subscription rights, resulting in the issuance of 5,055,345 shares of common stock and Warrants to purchase an additional 5,055,345 shares of common stock.

In accordance with the undertakings made by the Company in the Registration Statement to remove from registration, by means of post-effective amendment, any of the securities remaining unsold at the termination of the offering, the Company hereby removes from the Registration Statement the 9,944,655 shares of common stock, Warrants to purchase 9,944,655 shares of common stock and 9,944,655 Warrant Shares (together with such indeterminate number of shares of common stock as may have become issuable upon exercise of the Warrants registered pursuant to Rule 416) registered but unsold.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933 and Rule 478 thereunder, the Registrant has duly caused this Post-Effective Amendment No. 1 to Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Belgrade, State of Montana, on November 17, 2016.

XTANT MEDICAL HOLDINGS, INC.

By: /s/ John Gandolfo
Name: John Gandolfo
Title: Chief Financial Officer

Note: No other person is required to sign this Post-Effective Amendment No. 1 to the Registration Statement on Form S-1 in reliance on Rule 478 of the Securities Act.
