

June 17, 2016

VIA EDGAR

Susan Hayes
Assistant Director
Office of Healthcare and Insurance
Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549

Re: Xtant Medical Holdings, Inc.
Post-Effective Amendment No.2 to
Registration Statement on Form S-1
Filed April 29, 2016
File No. 333-203492

Dear Ms. Hayes:

On behalf of Xtant Medical Holdings, Inc. (the "Company"), we respond as follows to the Staff's comment letter, dated May 25, 2016, Post-Effective Amendment No. 2 to Registration Statement on Form S-1 ("Second Post-Effective Amendment").

Captions and page references herein correspond to those set forth in Amendment No. 1 to the Second Post-Effective Amendment ("Amended Second Post-Effective Amendment") as filed with the Securities and Exchange Commission (the "Commission") on the date hereof. Capitalized terms used but not defined herein have the meanings ascribed to them in Amended Second Post-Effective Amendment.

Please note that for the Staff's convenience, we have recited each of the Staff's comments and provided the Company's response to each comment immediately thereafter.

General

- We note the disclosure in the body of the prospectus has not been updated since August 25, 2015. In this regard, please update your disclosures to reflect your operations and conditions as of the most recent practicable date. Please include or update, as applicable, your current business operations, revised financial disclosures and management's discussion and analysis of financial condition and results of operations, any share issuances to date under the Aspire Capital Fund, LLC purchase agreement, executive compensation disclosures, common stock outstanding, and the ticker symbol and marketplace upon which your shares are traded.***
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The disclosure in the Amended Second Post-Effective Amendment has been revised in response to the Staff's comment.

Incorporation of Certain Information by Reference, page 69

2. *We note that it appears that you are relying on General Instruction VII of Form S-1 to incorporate by reference information into your registration statement; however, it appears that you have not incorporated by reference all reports filed pursuant to Section 13(a), Section 14 or Section 15(d) of the Exchange Act since the end of your most recent fiscal year. For instance, please revise to incorporate specifically the Forms 8-K filed on January 22, 2016 and April 19, 2016, as well as your periodic report on Form 10-Q filed on May 11, 2016.*

The disclosure on page 75 in the Amended Second Post-Effective Amendment has been revised in response to the Staff's comment.

Signatures

3. *Please update your signature page to the most recent practicable date.*

The signature page to the Amended Second Post-Effective Amendment has been revised in response to the Staff's comment.

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The Company hereby acknowledges that:

- should the Commission or the Staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
 - the action of the Commission or the Staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the Company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
 - the Company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.
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If you have any questions, please do not hesitate to contact me at (406) 388-0480.

Very truly yours,

XTANT MEDICAL HOLDINGS, INC.

/s/ John Gandolfo
John Gandolfo
Chief Financial Officer

cc: Travis Leach, Ballard Spahr LLP
