

September 26, 2006

Mail Stop 6010

Gregory D. Casciaro
Xtent, Inc.
President, Chief Executive Officer and Director
125 Constitution Drive
Menlo Park, CA 94025-1118

**Re: Xtent, Inc.
Amendment No. 1 to Registration Statement on Form S-1
Filed September 8, 2006
File No. 333-136371**

Dear Mr. Casciaro:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

We welcome any questions you may have about our comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Amendment No. 1 to Form S-1

1. We note your response to comment 1 in our letter to you dated August 29, 2006. However, it is not evident that you have enlarged the print on the caution at the bottom of the page. Therefore, we reissue the first part of comment 1.
2. We note your added disclosure in response to comment 5 that the use of bare metal stents "may increase." It is unclear from this disclosure, however, that as a result of the recent studies mentioned, some cardiac centers have already reduced the use of drug-coated stents by substituting uncoated, bare-metal stents for drug-coated stents. Please expand your disclosure to clarify this.

Critical Accounting Policies and Estimates, page 48

Stock-Based Compensation, page 49

3. We note the revised disclosure on page 49 and 50 provided in response to prior comment 21. Consistent with the guidance provided in paragraph 182 of the AICPA's "Valuation of Privately-Held-Company Equity Securities Issued as Compensation" please revise the section to provide a discussion of the significant factors, assumptions and methodology used to determine fair value of your common stock at each grant date.
 - Clearly disclose how you considered the preferred stock issuances in your methodology;
 - Disclose that you used the market approach in performing the retrospective valuations;
 - Disclose any marketability discount you applied in performing the valuations and identify the factors for which the discount was used to adjust the company's value, and
 - Tell us the amount of the discount relating to each factor.
4. In this regard, we note the disclosure that you believe that the fair value of your common stock is appropriately reflected using a linear progression.
 - In light of the guidance provided in paragraphs 24 and 114 of the AICPA's "Valuation of Privately-Held-Company Equity Securities Issued as Compensation" which indicates that the value of the company is based on events in its operating history that likely have not occurred in a linear fashion, please explain why you believe that use of such a methodology is appropriate.
 - Otherwise, revise the methodology to correctly assign changes in the value of the company based on the timing of those factors and events considered by your board of directors, such as operating and performance history, achievement of milestones, etc., which you have already described in the section.
5. We also note from your response to prior comment 21 that to establish the fair market value of your common stock at June 5, 2006, you relied on the underwriter's preliminary valuation and applied a discount to adjust for volatile

market conditions, and significant risks relating to successful completion of the offering as well as risks that the underwriter's value would not be achieved. In addition, you also indicate that in reassessing the estimated fair value of your common stock before the IPO, you also applied a discount of 10% to the value of your common stock to reflect the fact that your stockholders cannot freely trade the stock in the public markets.

- Explain to us why the discounts adjusting for significant risks relating to successful completion of the offering as well as risks that the underwriter's value would not be achieved would not have already considered the inability of the shareholders to freely trade the stock in the public markets.
 - Tell us the date on which you received the underwriter's valuation and the anticipated IPO event date utilized in that valuation.
6. We note the revised disclosure on page 49 and 50 provided in response to prior comment 21. Consistent with the guidance provided in paragraph 182 of the AICPA's "Valuation of Privately-Held-Company Equity Securities Issued as Compensation" please revise the section to provide a discussion of each significant factor contributing to the difference between the fair value of your common stock at each grant date and the estimated IPO price.
7. We may have additional comments relating to share-based compensation matters after reviewing the amendment which includes the offering price of your common stock.

Business, page 52

8. We note your response to comment 13. Where you refer to data prepared by Millennium Research Group, please revise to state that you compensated Millennium Research Group for gathering statistics used in the prospectus.

The XTENT Solution, page 56

9. We note your revised disclosure and response to comment 15. Please expand your disclosure to explain briefly why you believe the uses of your primer with the listed medical devices are similar to the uses with your stents such that the permanent primer will have an insignificant physiological response. For example, address whether the other medical devices are implantable, and how long these other devices remain implanted as compared to your stents.

Gregory Casciaro
Xtent, Inc.
September 26, 2006
Page 4

As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes all information required under the Securities Act of 1933 and that they have provided all information investors require for an informed investment decision. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

You may contact Kevin Vaughn at (202) 551-3643 or Martin James, Senior Assistant Chief Accountant, at (202) 551-3671 if you have questions regarding comments on the financial statements and related matters. Please contact Eduardo Aleman at (202) 551-3646 or me at (202) 551-3800 with any other questions.

Sincerely,

Peggy Fisher
Assistant Director

cc(via facsimile): J. Casey McGlynn, Esq.