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

DIVISION OF
CORPORATION FINANCE
Mail Stop 3030

June 4, 2010

Manny Villafana
Chairman and Chief Executive Officer
Kips Bay Medical, Inc.
3405 Annapolis Lane North, Suite 200
Minneapolis, Minnesota, 55447

Re: Kips Bay Medical, Inc.
Amendment No. 1 to Registration Statement on Form S-1
Filed May 20, 2010
File No. 333-165940

Dear Mr. Villafana:

We have reviewed your amended filing and your related correspondence 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.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. 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.

Prospectus Summary, page 1

1. We note your response to prior comment 39. However, it appears that your registration statement still contains several unsubstantiated statements. Therefore, we reissue the comment.

2. We note your response to prior comment 3. Please briefly explain the reason for the significant increase in your net loss for the quarter ended March 31, 2010.

3. Please clarify the meaning of the term “commercialize” as it is used by you throughout the document. To the extent that you are referring to specific steps or milestones, please

explain this term at the front of the prospectus so that investors may have a clear understanding of its meaning as they read your disclosure.

Our Solution, page 2

4. We note your added disclosure with regard to potential disadvantages. Note that balanced disclosure requires that you discuss rather than merely list these disadvantages. Furthermore, please consider whether additional disadvantages should be discussed here.

Risk Factors, page 7

5. We note your response to prior comment 8. Your risk factor states that you are highly dependent on clinical investigators and sites to conduct your trials and to perform other related matters. We are unable to reconcile this disclosure with the statement in your supplemental response that your agreements with these parties are not material. Please revise to disclose the information requested in our prior comment 8. In addition, please file the agreements as exhibits.

Our operations involve hazardous materials…, page 17

6. In your response to prior comment 9 you state that the burden of compliance with regulations regarding hazardous and toxic materials is not material to your business. However, given your disclosure in this risk factor that you "could incur costs, fines and civil and criminal sanctions… or could be required to incur substantial investigation or remediation costs," it appears the effects of these regulations may be material to your business. Please tell us why the effects of these regulations are not material to your business or provide the disclosure requested in our prior comment 9.

Raising additional capital…, page 21

7. Please revise under this heading and under "Liquidity and Capital Resources" at page 37 to disclose the supplemental information included in your response to prior comment 18.

Selected Financial Data, page 27

8. We note that you refer to March 31, 2010, March 31, 2009 and the period from May 1, 2007 (date of inception) to March 31, 2010 amounts as unaudited. Please revise to remove the word 'unaudited' from the tables of financial information in your MD&A to avoid giving the impression that unmarked information is audited.

Management's Discussion and Analysis…, page 28

9. We note the list of future trends or events you provided in response to prior comment 13. You provide little or no assessment of the likelihood of such events occurring or any analysis of such trends or events, therefore we reissue the comment. Also, please explain why your analysis does not address the trend toward managed healthcare disclosed by you in the penultimate paragraph on page 59.

Royalty Payments, page 40

10. We note your response to prior comment 19. With respect to the reversion rights referenced in the final paragraph of this section, please revise to provide additional detail as to how these rights operate. For example, please disclose:

    - how, and by whom, the determination will be made that you have ceased commercializing either the eSVS MESH or the Brushed Graft Product (for instance, what does it mean to cease commercialization; and would there be a distinction between suspending commercialization, or being unable to commercialize at this time, and ceasing commercialization?);

    - how the rights work procedurally (i.e., are certain notices required, must certain time periods elapse?);

    - whether you would retain any rights in the core intellectual property, including rights to payments, after the reversion; and

    - whether there are any termination fees and the parties that would bear any costs related to termination.

    Note that the bullets above are not intended as an exhaustive list of material terms to be discussed. Please revise as necessary.

Conduct trials to expand indications…, page 43

11. We note your response to prior comment 24 and reissue in part. Please disclose the expected costs of these trials to you.

12. In addition, please revise to update the status of these trials and their expected timetables for completion, if known.

Europe and Other International Markets, page 50

13. We note your response to prior comment 28. However, it is unclear why you believe that the CE Mark will allow you to begin regulatory submissions to other markets. Do regulators in these markets consider whether a CE Mark has been obtained by an applicant? Clarify.

Intellectual Property, page 51

14. We note your response to prior comment 29. Please revise to prominently disclose this information in your prospectus summary.

15. With a view towards disclosure, please tell us what steps are necessary to overcome the patent rejections. In addition, please disclose when you expect to receive final determinations with respect to your patent applications and your plans in the event that you are unable to overcome the patent rejections.

16. We note your response to prior comment 31. Given that the Brushed Graft Product appears to be one of your primary products/initiatives, please provide additional analysis as to why you believe that the assignment should not be filed. Furthermore, it would appear that the assignment is necessary to a full understanding of the assignment and license agreement which is filed as an exhibit.

17. Please revise the second-to-last paragraph of this section for clarity.

Competition, page 52

18. Your disclosure indicates that you are competing against other forms of treatment. Therefore, it would appear that the fail rate of CABG is a relevant competitive feature. Is the fail rate of CABG less than that of other forms of treatment? Please more clearly explain why you believe that fail rate is not a competitive disadvantage or revise your disclosure to provide the information requested by our prior comment 34.

Third-Party Reimbursement, page 59

19. We note your response to prior comment 36. However, your disclosure continues to focus disproportionately on the U.S. market rather than the European markets in which you will initially operate. Please revise to expand your discussion of the third-party reimbursement systems in relevant European markets. In so doing, specify the countries in which you will focus your efforts and the likelihood of encountering difficulties related to this process. For instance, and without limitation, your revised disclosure should address whether your device would be classified as an existing DRG in Germany and the impact of the classification on your business.

20. Refer to the spillover paragraph at the bottom of page 60. With a view towards disclosure, please tell us the procedure for seeking approval for a hospital inpatient New Technology Add-On Payment. In addition, please tell us whether failure to receive this approval would have an adverse impact on your business.

Investment Agreement with Kips Bay Investments, LLC, page 76

21. Refer to the final sentence of this section. Please disclose, if true, that KBI's approval of the issuance of common stock in this offering was required.

Exhibits

22. We note your responses to prior comments 59 and 60. Because we may have further comments on these exhibits, please file them as soon as practicable so that the staff may have adequate time to review and comment.

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.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, acknowledging 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.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in connection with our review of your filing or in response to our comments on your filing.

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 Julie Sherman at (202) 551-3640 or Jeffrey Jaramillo, Accounting Branch Chief at (202) 551-3212 if you have questions regarding comments on the financial statements and related matters. Please contact Ruairi Regan at (202) 551-3269 or me at (202) 551-3314 with any other questions.

Sincerely,

Daniel Morris
Special Counsel

cc (by facsimile): Robert K. Ranum, Esq.