

Mail Stop 6010

July 15, 2005

David J. Drachman
President and Chief Executive Officer
AtriCure, Inc.
6033 Schumacher Park Drive
West Chester, Ohio 45069

Re: AtriCure, Inc.
Amendment No. 2 to Registration Statement on Form S-1
Filed July 7, 2005
File No. 333-124197

Dear Mr. Drachman:

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.

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

Consolidated Financial Statements of AtriCure, Inc. for the year ended December 31, 2004

Note 1. Summary of Significant Accounting Policies, page F-7

Property and Equipment, page F-8

1. Refer to your response to prior comment 12 in our letter dated June 27, 2005. You revised your disclosure to state that you depreciate the loaned equipment to cost of sales over three years because it is the useful life of the equipment. We also note that the equipment is used by your customers for an indefinite period, as long as the customer is purchasing AtriCure's handpieces. Please tell us and revise to disclose the basis for the three year useful life of the equipment. Correlate the three year period to the typical timeframe that a customer retains the equipment. Additionally, please tell us how you account for fully depreciated equipment that is redeployed to another customer for use with Atricare's handpieces.

Note 2. Stock Option Plan, page F-9

2. We note your response to prior comments 13 and 14 our letter dated June 27, 2005. You state that your underwriters confirmed that an IPO was feasible in the fourth quarter of 2004. We also see that you continued to apply an illiquidity discount of 20% to the fair value of your stock during the fourth quarter of 2004 and the first quarter of 2005. Generally, the closer the company gets to an IPO, the less supportable an illiquidity discount becomes. Please revise to clarify the basis for using the illiquidity discount in your

determination of fair value of your stock for options issued after the IPO was deemed feasible. Factors to consider include features, such as put rights, dividend payments, potential buyers (e.g., sales under Rule 144A), the availability and reliability of financial information to potential buyers, liquidity preferences, and restrictive transfer provisions.

3. We note your revised disclosures in response to prior comment 15. You state that the exercise price was set by the board based on a valuation performed contemporaneously by a board member ..."
Please revise your filing to disclose how you determined the fair value of options granted, not the exercise price. Additionally, it appears as though you determined the fair value of options retroactively since you disclose that you incurred a charge for stock compensation for employees that were determined to be issued with exercise prices below market value subsequent to their issuance. Please revise your filing to clarify your methodology for determining the fair value of options issued to employees.

Note 3. Convertible Debt, page F-11

4. We note your reference to an independent appraisal firm used in valuing stock warrants on page F-11. Reference to an independent valuation expert is not required, however, when this reference is made the expert should be named and their consent included in the amendment. Alternatively, please remove this reference and disclose details of the methodology and assumptions you used to determine this value. Please revise.

Consolidated Financial Statements of Enable Medical Corporation, Inc.
for the year ended December 31, 2004

Note 2. Stock Option Plan, page F-32

5. We note your revised disclosures in response to prior comment 19 regarding how you determined the exercise price of Enable stock. Please revise your filing to disclose how you determined the fair value of options granted, not the exercise price. We see that the fair value was determined to be between \$0.05 and \$0.08 per share during 2004. Please revise your filing to clarify your methodology for determining the fair value of options issued to employees.

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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.

You may contact Kristin Lochhead at (202) 551-3664 or Brian Cascio, Accounting Branch Chief, at (202) 551-3676 if you have questions regarding comments on the financial statements and related matters. Please contact Mary Beth Breslin at (202) 551-3625 or me at (202) 551-3880 with any other questions.

Sincerely,

Peggy A. Fisher

Assistant Director

cc (via fax): Theodore L. Polin, Esq.
Alan D. Schnitzer, Esq.

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David J. Drachman
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