



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

Mail Stop 4561

June 1, 2009

Tarek A. Sherif
Chief Executive Officer
Medidata Solutions, Inc.
79 Fifth Avenue, 8th Floor
New York, NY 10003

**Re: Medidata Solutions, Inc.
Amendment No. 2 to Registration Statement on Form S-1
Filed May 15, 2009
File No. 333-156935**

Dear Mr. Sherif:

We have reviewed your filing and have the following comments.

Amendment No. 2 to Registration Statement on Form S-1

Management's Discussion and Analysis of Financial Condition and Results of Operations

Internal Controls over Financial Reporting, page 42

1. You indicate that, together with your independent registered public accounting firm, you identified material weaknesses in revenue and expense cut-off in connection with the audit of your consolidated financial statements for the years ended December 31, 2006 and 2007. Please revise your disclosure throughout this section to specifically address the restatement you reported in Note 2 of your consolidated financial statements. As part of your response, tell us whether you consider the restatement of your December 31, 2008 financial statements to be indicative of the previously identified material weaknesses, a separate material weakness, or not a material weakness.

Critical Accounting Policies

Stock-Based Compensation

Significant Factors, Assumptions and Methodologies Used in Determining the Fair Value of our Capital Stock, page 45

2. We note your response to prior comment 5 of our letter dated April 6, 2009 and remind you to revise your disclosures to include a discussion of each significant factor contributing to the difference between the estimated IPO price and the fair value of your common stock at each valuation date upon determination of your IPO price.

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As appropriate, please amend your filing in response to these comments. Your responsive amendments should also include marked copies of the amended filing that conform with the provisions of Rule 310 of Regulation S-T. Marked copies such as those in HTML format that show changes within paragraphs help us to expedite our review. Please furnish a cover letter with your amendment that keys your response to our comments and provide 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.

If you have questions or comments on the financial statements and related matters, please contact Jennifer Fugario, Staff Accountant, at (202) 551-3482 or, if you require additional assistance, you may contact Mark Shannon, Staff Accountant, at (202) 551-3299. Please contact Michael F. Johnson, Staff Attorney, at (202) 551-3477 with any other questions. If you require further assistance, you may contact me at (202) 551-3735 for additional assistance.

Sincerely,

Barbara C. Jacobs
Assistant Director

cc: Via Facsimile (212) 318-3400
Warren J. Nimetz, Esq.
Fulbright & Jaworski L.L.P.