

Mail Stop 4561

April 6, 2009

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

**Re: Medidata Solutions, Inc.  
Amendment No. 1 to Registration Statement on Form S-1  
Filed March 23, 2009  
File No. 333-156935**

Dear Mr. Sherif:

We have reviewed your filing and have the following comments.

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

Risk Factors, page 9

General

1. We note your response to comment 6 of our prior letter dated February 20, 2009. We will contact you separately regarding the generality of your risk factors disclosure and related matters.

“Claims that we or our technologies infringe upon the intellectual property or other proprietary rights of a third party ...”, page 14

2. We note that you have agreed to defend and indemnify one of your partners with respect to its use of Medidata Rave. While we note that you have indicated the outcome and the future impact of lawsuits on Medidata remain uncertain, please tell us what consideration you gave to quantifying your potential exposure pursuant to your agreement with your partner to defend and indemnify them and/or describing the relief being sought in the lawsuits. Further, please tell us how you determined you are not required to file this agreement pursuant to Item 601(b)(10) of Regulation S-K.

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

Internal Controls over Financial Reporting, page 40

3. We note your revised disclosure in response to prior comment 10 does not appear to describe all of the deficiencies in your accounting for revenues such as the lack of a standardized contract or the ability to account for contracts that contain non-standardized terms, lack of a centralized contract management system to maintain control over the population of contracts, and inadequate documentation of revenue recognition conclusions. Please clarify why you have not included a description of these items in your disclosure or revise as applicable.
4. Please tell us how you considered more fully describing the cause and potential impact of your material weaknesses on your internal controls over financial reporting and your financial statements. See Section II.B.3 of the Commission Guidance Regarding Management's Report on Internal Control Over Financial Reporting Under Section 13(a) or 15(d) of the Securities Exchange Act of 1934.

Critical Accounting Policies

Stock-Based Compensation

Significant Factors, Assumptions and Methodologies Used in Determining the Fair Value of our Capital Stock, page 42

5. When the price range for the offering is determined, please 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.

Executive Compensation

Compensation Discussion and Analysis, page 78

6. We refer to comment 22 of our prior letter dated February 20, 2009, and reissue that comment, in part. We note your statement "[i]n light of our strong financial performance, as well as subjective assessments of other aspects of management performance, including bookings, improvements in the control environment and preparation towards the potential initial public offering, the committee awarded each of the named executive officers ... a bonus percentage at 160% of target." Your discussion should quantify the amount of bonus compensation determined by individual performance, on the one hand, and company performance, on the other. See Item 402(b)(2)(vii) of Regulation S-K. We do note your quantification of the annual cash incentive bonus awarded Ms. Krasnow based upon individual performance.

7. We refer to comment 23 of our prior letter dated February 20, 2009 and reissue that comment. Please tell us what consideration you gave to discussing your range of performance targets and the amount of compensation payable at each range.

Consolidated Financial Statements of Medidata Solutions, Inc. and Subsidiaries for the Years Ended December 31, 2006, 2007 and 2008

Notes to Consolidated Financial Statements

Note 2. Summary of Significant Accounting Policies

Revenue Recognition

Application Services, page F-8

8. Your response to prior comment 29 indicates you consider the existence of significant incremental renewal discounts or non-refundable fees when estimating the term of your arrangements. Please explain to us what the customer receives in return for the upfront non-refundable fees, and, other than the impact on the estimated term of the arrangement, please describe how you account for significant incremental renewal discounts and upfront non-refundable fees. Please refer to authoritative accounting literature in your response and revise your disclosures as applicable.

Professional Services, page F-9

9. We note you use the residual method to account for multiple element arrangements that include professional services. Please clarify when the professional services are considered delivered relative to the application services. To the extent the professional services are considered delivered first, please tell us whether or not you have established VSOE of the fair value of application services in these arrangements. Your response should separately address arrangements accounted for under EITF 00-21 and SOP 97-2.

Note 14. Commitments and Contingencies

Indemnifications, page F-31

10. Please tell us how you considered the accounting and disclosure requirements of FIN 45 with respect to the indemnification agreement you describe on page 14.

Exhibit Index

11. We refer to comment 35 of our prior letter dated February 20, 2009. Please file your Third Amended and Restated Certificate of Incorporation, which we understand from your response includes the designations for your Series A, B, C and D preferred stock. Refer to Item 601(b)(3)(i) of Regulation S-K.

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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 Fugaro, 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.