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TECHNICAL  
R E P O R T

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# Physician Cost Profiling— Reliability and Risk of Misclassification

Detailed Methodology and Sensitivity  
Analyses

TECHNICAL APPENDIX

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## Summary

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This technical report accompanies the article “Physician Cost Profiling—Reliability and Risk of Misclassification,” published in the *New England Journal of Medicine* (Adams et al., 2010). In this report, we provide more detail about the methods used to assess the reliability of physician cost profiling tools and the potential for misclassification of physician performance. We also present the results of our sensitivity analyses.

Purchasers are experimenting with a variety of approaches to control health care costs, including limiting network contracts to lower-cost physicians and offering patients differential copayments to encourage them to visit “high-performance” (i.e., higher-quality, lower-cost) physicians. These approaches require a method for analyzing physicians’ costs and a classification system for determining which physicians have lower relative costs. To date, many aspects of the scientific soundness of these methods have not been evaluated.

One important measure of scientific soundness is reliability. Reliability is a key metric of the suitability of a measure for profiling because it describes how well one can confidently distinguish the performance of one physician from that of another. Conceptually, it is the ratio of signal to noise. The signal, in this case, is the proportion of the variability in measured performance that can be explained by real differences in performance.

The overall finding of the research is that the majority of physicians in our data sample did not have cost profiles that met common thresholds of reliability and that the reliability of cost profiles varied greatly by specialty. In an illustrative two-tiered insurance product, a large fraction of physicians were misclassified as low-cost when they were actually not, or vice versa. Our findings raise concerns about the use of cost profiling tools, because consumers, physicians, and purchasers are at risk of being misled by the results.