

## Do Higher Test Scores Equate to Higher-Quality Care?

Holmboe ES, Wang Y, Meehan TP, et al. Association between maintenance of certification examination scores and quality of care for Medicare beneficiaries. *Arch Intern Med* 2008;168:1396–403.

### Study Overview

**Objective.** To examine the relationship between physicians' cognitive abilities, as determined by performance on American Board of Internal Medicine (ABIM) examinations, and the quality of care physicians provide to Medicare patients.

**Setting and participants.** Internists who received their initial board certification between 1990 and 1995 were grouped into quartiles according to performance on the ABIM maintenance of certification (MOC) examination. Medicare claims and enrollment data from 2002 and 2003 were used to determine whether the internists performed clinically important processes of care across measures for diabetes, mammography, and cardiovascular disease. Physicians initially licensed before 1985 and those in practices with < 30 or > 800 Medicare beneficiaries were excluded from the study.

**Main outcome measures.** The association between MOC scores and the provision of appropriate clinical care such as biannual measurement of hemoglobin A<sub>1c</sub>, lipid testing, and retinal screening for diabetes care; mammography screening for women aged 65 to 74 years; and lipid testing for patients with peripheral vascular and cardiovascular disease.

**Main results.** 3602 internists who cared for more than 220,000 Medicare patients were included in the study. Internists who ranked in the top quartile based on MOC examination results were more likely to provide appropriate processes of care for diabetes (odds ratio [OR], 1.17 [95% confidence interval {CI}, 1.07–1.27]) and mammography screening (OR, 1.14 [95% CI, 1.08–1.21]) as compared with internists in the lowest quartile. The correlation between MOC examination result and processes of care for cardiovascular disease was weaker, likely due to a greater number of Medicare patients concurrently assessed by cardiology subspecialists (59% vs. 6% of diabetic patients who visited an endocrinologist).

**Conclusion.** There appears to be a relationship between internists who perform well on ABIM MOC examinations and the quality of care they provide to their patients. Further studies are needed to assess whether this relationship is reproducible and holds true for a wider range of quality of care measures.

### Commentary

Quality of care received by Americans remains an ongoing concern for clinical managers [1], policy makers, and even patients [2]. Although there are convincing data that the care Americans receive is unacceptably variable, little is known about the factors that underlie these differences. This study by Holmboe and colleagues suggests 1 potential explanation for these differences in care: some patients have physicians with better cognitive skills, as measured by MOC examinations.

The study's finding seems logical and intuitively appealing—physicians who are smarter or more knowledgeable should provide better care to their patients. However, these findings contradict the assumption made by most quality experts, specifically that differences in care are due to variations in “systems” of care and not individual physicians [3]. However, the limitations of the Holmboe study affect its interpretability, and the results should be taken with caution.

The most challenging element of the study is that it is observational. Because physicians could not be randomized to a high or low score on the certification examination, unmeasured confounders may have affected the results. When we examine the characteristics of high- and low-scoring physicians and where they practice, the concern for unmeasured confounding becomes more apparent. For instance, physicians in the top quartile of MOC examination scores were twice as likely to be based at an academic medical center or practice in a large group setting. These physicians were also far more likely to graduate from a U.S. or Canadian medical school. Although these factors were measured and accounted for in the multivariable models, the large differences in medical school and practice settings between high- and low-scoring physicians raises concern about other unmeasured factors that could have affected the results. For instance, high-performing physicians may seek out more intellectually engaging clinical environments or work with other high-performing colleagues. Similarly, high-scoring physicians may gravitate towards working in practices with more advanced systems, such as electronic health records and clinical reminders. These differences could easily account for the observed gaps in quality of care.

### Applications for Clinical Practice

For patients and clinical managers alike, identifying physicians

who are likely to provide high-quality care is an important priority. The study by Holmboe and colleagues suggests that physicians provide better care if they score well on certification examinations. However, the limitations of the study should give pause to those who might use examination scores to choose high-quality providers. Whether physicians who score well on examinations simply practice in more advanced settings or whether they truly provide better care independent of their local environment needs to be better understood.

—*Review by Ashish K. Jha, MD, MPH*

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## References

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