stroke) compared with any of the other novel risk markers considered, including carotid intima–media thickness. We hope that, in the near future, even better risk prediction strategies will emerge to permit more efficient targeting of high-risk patients for preventive interventions.

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Physician Quality and Maintenance of Certification

To the Editor: The Viewpoint by Drs Conway and Cassel[1] stated that Maintenance of Certification (MOC) has " . . . the clear aim to improve quality. . . . " However, the authors provide no convincing data to show that this goal has been accomplished. We are unaware of data that MOC produces better clinicians or benefits patients.

Certification was developed to prove that a physician had become knowledgeable in a specialty. Voluntary recertification began in 1974; but what began as a reasonable way to keep up with advances in medicine has turned into a costly, mandatory process. Forcing physicians to retake tests every few years requires expense and time off work for test preparation. In our opinion, a flexible approach with self-directed continuing medical education and voluntary self-assessment products would be less time-consuming, less expensive, and more effective than MOC. Additionally, taking a test without access to tools physicians use daily, such as smart phones and computers, seems not to reflect the actual practice of medicine.

The American Board of Internal Medicine (ABIM) and the American Board of Medical Specialties (ABMS) are significantly conflicted in their promotion of MOC because the real financial rewards may be enormous. For example, the ABIM in its 2009 publicly available tax return noted income of nearly $40 million from "program service revenue," which likely includes certification and recertification.[2] When physicians must take examinations every 5 to 10 years, the Boards are ensured a constant income stream.

The ABMS and its member societies are accountable to no one and issue regulations without input or oversight. Although the ABMS states that MOC is voluntary, physicians must comply with MOC rules to participate in many insurance programs or to retain their hospital privileges at some institutions.

Conway and Cassel claimed that the "comprehensiveness of the MOC approach makes sense to physicians and is consistent with the clinical flow of their practice." An increasing number of physicians[3] believe that the opposite is the case: MOC does not make sense. In our opinion, MOC exists mainly to generate revenues for the testing agency and medical boards and does not enhance the practice of medicine.

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In Reply: In surveys by the ABIM, physicians who complete MOC say they find it to be a valuable experience but also raise some of the concerns voiced by Dr Frager and colleagues. The ABIM continues to look for ways to make MOC more relevant to practice and reflective of real-world medicine. At the same time, the assessments must be rigorous enough to reliably differentiate physicians in setting a psychometrically valid standard (of performance).

As to the research on the benefits of certification and MOC, there have been several studies linking certification to quality. Because MOC is a relatively new program, there is less research, but 2 studies[1,2] reported that higher scores on the ABIM's MOC examination for internal medicine are associated with better performance on quality indicators for diabetes and mammography screening. In addition, a positive association was found between the rate at which preventive care services were delivered for Medicare patients and certification status in internal medicine or family medicine.[3] Additionally, time since a physician's last board certification correlates with decline in quality of care for patients being treated for high blood pressure.[4] More research needs to be done in this area.

As to the need for MOC, there is a large body of research on the association of age and clinical skills. On average, clinical skills tend to decline over time, and the amount of clinical experience does not necessarily lead to better outcomes or improvement of skills.[5] Also a physician's ability to independently and accurately self-assess and self-evaluate without guidance is limited.[6]

The challenge before the member boards of the ABMS is to ensure that the MOC program supports physicians in keeping up with medical advances, maintaining their clinical skills and knowledge, and delivering improved outcomes for patients. The ABMS specialty boards are also looking to find

ways to reduce the reporting burden on physicians. Currently 4 states (Minnesota, Oregon, Idaho, and North Carolina) allow MOC to count in lieu of continuing medical education for relicensing (and a number of others are moving in that direction), and participation in MOC can result in increased reimbursement through the Physician Quality and Reporting System program.

The fees charged for certification and MOC go to support the complex assessment tools, for testing of the information technology platform, and for the rigorous quality standards needed for 19 different subspecialties as well as general medicine. The ABIM works hard to keep fee increases to a minimum and is proud that it charges the second lowest fees of all 24 boards.

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RESEARCH LETTER

Trends in the Prevalence of Extreme Obesity Among US Preschool-Aged Children Living in Low-Income Families, 1998-2010

To the Editor: Obesity and extreme obesity in childhood, which are more prevalent among minority and low-income families, have been associated with other cardiovascular risk factors, increased health care costs, and premature death.[1,2] Obesity and extreme obesity during early childhood are likely to continue into adulthood.[3] Understanding trends in extreme obesity is important because the prevalence of cardiovascular risk factors increases with severity of childhood obesity.[2] However, national trends in extreme obesity among young children living in low-income families are unknown.

Methods. The Pediatric Nutrition Surveillance System (PedNSS) includes almost 50% of children eligible for federally funded maternal and child health and nutrition programs. The study population included 27.5 million children aged 2 through 4 years from 30 states and the District of Columbia that consistently reported data to PedNSS from 1998 through 2010. We excluded those with missing (n=297 999; 1.1%), miscoded (n=106 844; 0.4%), or biologically implausible height, weight, or body mass index (BMI) (n=427 051; 1.6%), leaving 26 708 517 children. The study was exempt from ethics review by the US Centers for Disease Control and Prevention (CDC).

One routine clinic visit with demographic information and measured height and weight was randomly selected for each child.[4] Obesity (BMI ≥95th percentile for age and sex) and extreme obesity (BMI ≥120% of the 95th percentile) were defined according to the 2000 CDC growth charts.[5] We examined trends from 1998 through 2010 in mean BMI and the prevalence of obesity and extreme obesity. Significant changes in overall trends were identified by the Joinpoint regression program version 3.5.3 (National Cancer Institute). Piecewise logistic regression adjusting for age, sex, and race/ethnicity was performed to examine trends using SAS version 9.2 (SAS Institute Inc). Using the transition year for overall trend detected by Joinpoint, separate line segments prior to and after that year were fitted.

Results. The 2010 study population was slightly younger and had proportionally more Hispanics and fewer non-Hispanic whites and blacks compared with the 1998 population (**Table 1**). Joinpoint regression found significant changes in trends of obesity and extreme obesity in 2003. The prevalence of obesity increased from 13.05% (95% CI, 13.00%-13.09%) in 1998 to 15.21% (95% CI, 15.16%-15.26%) in 2003. The prevalence of extreme obesity increased from 1.75% (95% CI, 1.73%-1.77%) in 1998 to 2.22% (95% CI, 2.20%-2.24%) in 2003. However, the prevalence of obesity decreased slightly to 14.94% (95% CI, 14.89%-14.98%) in 2010. Similarly, the prevalence of extreme obesity decreased to 2.07% (95% CI, 2.05%-2.09%) in 2010 (Table 1).

From 1998 through 2003, the prevalence of extreme obesity significantly increased overall (adjusted odds ratio [AOR], 1.047; 95% CI, 1.045-1.049) and in all groups except Asians/Pacific Islanders; the greatest average annual increases were among those aged 4 years and non-Hispanic whites (**Table 2**). From 2003 through 2010, extreme obesity significantly decreased overall (AOR, 0.983; 95% CI, 0.981-0.984) and in all groups except American Indians/Alaska Natives; the greatest decreases were among those aged 2 years and Asians/Pacific Islanders (Table 2).

Comment. Results of a previous study[6] based on a broader sample of children aged 2 through 4 years in PedNSS indicated that the prevalence of obesity increased from 12.4% in 1998 to 14.5% in 2003, but remained essentially unchanged until 2008. Few studies have focused on extreme obesity because of its relatively low prevalence in national data. With data through 2010, we found that the upward trends in obesity and extreme obesity turned downward slightly in 2003 among preschool-aged children living in low-income families. To our knowledge, this is the first na-