



## A Review of the Literature Cited by the NCCPA to Support Proposed Changes to the PA Recertification Exam System

### Overview

**The literature cited by NCCPA does not support changes it proposes to make in PA recertification requirements. A review of the literature indicates that many types of CME have a positive effect on provider performance and patient outcomes. There is no literature cited that indicates taking maintenance of certification exams has an effect on provider performance or patient outcomes.**

NCCPA told AAPA that the recommended changes in the PA recertification regime are based on published evidence that “CME does not work” and that “repeated testing improves the retention of core knowledge” over the working life of a PA. The literature they cited to support those claims was listed in an NCCPA newsletter dated January 30, 2016. A summary of each study cited by NCCPA and its key findings is provided below.

### NCCPA Supporting Articles and a Summary of the Findings

1. Public Policy Institute, AARP. *Implementing Continuing Competency Requirements for Health Care Practitioners*. Washington, DC: AARP; 2006. <http://www.nbcna.com/about-us/Documents/ImplementingCC%20Requirements%20for%20HCP%202006.pdf>

#### Summary

- This monograph argues that continued licensing for medical professionals should include periodically demonstrating continuing competence.
- The authors **recommend that “state legislatures empower boards to recognize a variety of acceptable *pathways* via which licensees can demonstrate their continuing competence.”**
- Specifically, the authors recommend that “In addition to specialty certification bodies, licensing boards need to consider awarding deemed status to qualifying competency evaluation programs at hospitals and other institutions that credential, privilege, and/or employ health care professionals.” The authors cite the third-party assessment program at Pitt County Memorial Hospital in North Carolina as the type of program that could be used instead of a test by a certification body.
- **BOTTOM LINE: The authors of this policy paper support continued assessment and demonstration of competency of medical professionals throughout their lifetime, but also argue that there should be multiple pathways to assess and demonstrate competence that should not be limited to testing by a certifying body.**

2. Larsen, D. P. When I say ... test-enhanced learning. *Medical Education*. 2013; 47(10): 961–961. <http://doi.org/10.1111/medu.12238>

#### Summary

- This publication is a short explanation of what the author of the studies listed as 3, 4, and 5 (below) means when he discusses “test-enhanced learning”.
- He clarifies that test-enhanced learning is discussed in the context of classroom education, and concludes that “...teachers can plan for retention rather than simply assuming that it will happen. Educators should call upon (pun-intended) test-enhanced learning as they consider how to help their students retain the knowledge and skills they will need to care for patients.”
- **BOTTOM LINE: The author clarifies that his research is intended to apply to how medical education classes are structured. The author makes no claim that his research applies to repeated testing of “core knowledge” over the provider’s lifetime.**

3. Larsen, D. P., Butler, A. C., & Roediger III, H. L. Test-enhanced learning in medical education. *Medical Education*. 2008; 42(10): 959–966. <http://doi.org/10.1111/j.1365-2923.2008.03124.x>

#### Summary and Key Findings

- The authors summarize their own and other studies of “test-enhanced learning” in medical education courses. Test-enhanced learning is defined in the context of medical education classes, and is a process where students take tests throughout the classroom experience which require them to repeatedly retrieve information.
- They state that they are “optimistic that incorporating testing exercises of all sorts within the educational process can benefit learning,” and note that test-enhanced learning could be a “welcome addition to the tools with which educators can help medical students, residents and practicing doctors retain information and progress toward greater clinical expertise.”
- The authors caution that “most studies of ‘long-term’ testing effects have used retention intervals (i.e., the time before the final examination) of less than 1 week, although a few have used longer intervals of up to 6 weeks.” They conclude that “the efficacy of testing in promoting retention over long periods of time has yet to be established.”
- **BOTTOM LINE: This research on test-enhanced learning may be applicable to improving continuing medical education through the incorporation of testing, particularly if the tests involved simulated patient care. The authors make no claim and present no evidence that periodic testing of general medical knowledge over the lifetime of a healthcare provider promotes improved clinical practice or patient outcomes.**

4. Larsen, D. P., Butler, A. C., Lawson, A. L., & Roediger, H. L. The importance of seeing the patient: test-enhanced learning with standardized patients and written tests improves clinical application of knowledge. *Advances in Health Sciences Education*. 2013; 18(3): 409–425. <http://doi.org/10.1007/s10459-012-9379-7>

#### Summary and Key Findings

- This study involved 41 medical students taking four weekly testing/studying sessions to learn material, engaging in the same activity for a given topic in each session. Six months after initial learning, they took a “standardized patient” test on each topic, followed by a written test on each topic 1 week later.

- The authors found that learning through “standardized patient” testing and written testing generally produced better retention at 6 months, compared to studying a review sheet. The authors also found that “standardized patient” testing led to significantly better performance on the final “standardized patient” test relative to written testing.
  - The authors conclude that for medical education courses, repeated testing through simulation with standardized patients and written tests improves long-term (measured at 6 months) retention and application of knowledge relative to repeated study.
  - **BOTTOM LINE: This study is intended to assist educators in designing more effective classroom strategies for medical education. It finds that simulation with standardized patients and repeated testing within the context of the course itself are associated with better performance and recall 6 months later. While these results may have implications for improving CME, the authors do not purport to show that repeated testing of “core knowledge” over one’s lifetime is necessary or effective to ensure patient safety or improve patient outcomes.**
5. Larsen, D. P., Butler, A. C., & Roediger III, H. L. Comparative effects of test-enhanced learning and self-explanation on long-term retention. *Medical Education*. 2013; 47(7): 674–682. <http://doi.org/10.1111/medu.12141>

#### Summary and Key Findings

- This study involved 47 first-year medical students taking four weekly learning sessions. The study compared results of four conditions: testing with self-generated explanations; testing without explanations; studying a review sheet without explanations; and studying a review sheet with explanations. “Long-term” recall was measured by a test on all four topics taken 6 months after completing the course.
  - The authors state that the conclusion to be drawn from the study is that “educators who must choose between the two learning activities [repeated testing vs. self-explanation], repeated testing appears to be the more robust and reliable technique.”
  - The study is intended to help medical educators decide how to best structure classroom learning; it is not intended to and does not suggest that recertification tests taken over one’s lifetime improve the retention of core knowledge attained through medical classroom learning.
  - **BOTTOM LINE: The study does not purport to show that repeated testing of “core knowledge” over one’s lifetime is necessary or effective to ensure patient safety or improve patient outcomes. Further, there is no factor in this study that models the impact of repeatedly applying that core knowledge in a clinical setting, as PAs do on a daily basis.**
6. Kromann, C. B., Jensen, M. L., & Ringsted, C. The effect of testing on skills learning. *Medical Education*. 2009; 43(1): 21–27. <http://doi.org/10.1111/j.1365-2923.2008.03245.x>

#### Summary and Key Findings

- According to the authors, “This study was conducted to determine whether testing as the final activity in a skills course increases learning outcome compared with an equal amount of time spend practicing the skill.”
- The study involved 140 seventh-semester medical students participating in a 4-hour, in-hospital resuscitation course, some of whom were tested at the end of the course and others of whom

were provided practice time. Retention was measured 2 weeks after the end of the course, using a skills assessment checklist.

- The authors state that “The study demonstrates that it is quite feasible to implement testing as a final activity in small-group simulation-based training, even in a rather short programme (i.e., 4 hours).”
- **BOTTOM LINE: The authors make no claim that their findings have any applicability to the question of whether repeated testing of core knowledge over an individual’s lifetime improves knowledge retention.**

7. Holmboe, E. S., Wang, Y., Meehan, T. P., Tate, J. P., Ho, S. Y., Starkey, K. S., & Lipner, R. S. Association between maintenance of certification examination scores and quality of care for Medicare beneficiaries. *Archives of Internal Medicine*. 2008; 168(13): 1396-1403. <http://archinte.jamanetwork.com/article.aspx?articleid=414352>

#### Summary and Key Findings

- The study examined the relationship between (1) the performance of 3,602 general internists, certified between 1990 and 1995, on the ABIM maintenance of certification exam and (2) the receipt of processes of care (hemoglobin A1C testing, mammography, lipid testing and retinal screening) by Medicare patients. The authors note that the “study looked only at process of care measures, not at outcome measures.”
- The authors found that the patients of internists who score higher on the exam are more likely to have received twice-yearly A1C testing and mammography in the past year, but found no difference in lipid testing or retinal screening. In this analysis, patients of physicians in the lowest quartile were 8.6 percent less likely to have had a mammogram in the past year, and 9.3 percent less likely to have had three diabetes tests over the past year.
- *In addition*, the authors found that physicians who did worse on their initial certification exam, who were not graduates of a U.S. or Canadian medical school, who had graduated more than 20 years ago from medical school, who were male, and who were solo practitioners did worse on the measures for diabetes testing and mammography.
- The authors suggest that the *reasons* for the positive correlation between examination scores and the likelihood of receipt of processes of care may be because physicians with better cognitive skills may be more effective in remembering to do the “right thing” or in creating systems, or may be more likely to create or create better systems of care delivery.
- The authors also compared the results for “physicians who did not take the test and found no difference in performance between physician groups with and without MOC scores.”
- **BOTTOM LINE:** The authors conclude that physicians who have better cognitive skills are more likely to ensure that recommended medical tests are received. They base this conclusion on their finding that Medicare patients of physicians with *higher scores* on MOC exams are somewhat more likely to receive two types of medical tests; though they found no difference in the likelihood of receiving two other types of medical tests. However, **the authors do not attribute these higher rates of medical testing to taking the MOC test, and, in fact, present evidence that there is no significant difference in performance between physicians who take the test and those who do not.**

8. Davis, D. A., Thomson, M. A., Oxman, A. D., & Haynes, R. B. Changing physician performance: a systematic review of the effect of continuing medical education strategies. *JAMA*. 1995; 274(9): 700-705. <http://www.ncbi.nlm.nih.gov/pubmed/7650822>

#### Summary and Key Findings

- This paper reviews the literature related to the effectiveness of CME strategies designed to change physician performance and healthcare outcomes. The authors review and summarize the findings of 99 studies (involving 160 interventions) that were published between 1975 and 1994.
  - The review found that, of the 145 interventions that focused on physician performance, 70 percent demonstrated change in at least one major measure. Of the 46 interventions targeted at changing health care outcomes, 22 percent succeeded in doing so. The authors note that the reasons changes in healthcare outcomes lag those in physician performance outcomes include patients' not accepting physician recommendations, the socioeconomic and educational status of patients, and, frequently, the limited effectiveness of the clinical interventions themselves.
  - The authors found a movement toward "evidence-based CME", and note that particularly promising among the effective interventions are reminders, academic detailing, and patient-mediated strategies. The findings also indicate support for formal CME activities that include peer discussion and role-playing. The authors also outline a research agenda for the expanding interdisciplinary field of CME.
  - **BOTTOM LINE: The authors do not say that CME is inherently ineffective in changing physician performance or healthcare outcomes; in fact, 70 percent of the interventions reviewed resulted in a positive change in physician performance. They do suggest that CME improved over the time period studied (1975-1994), and they identify types of CME that appear to produce better results in terms of changing physician performance and healthcare outcomes. In addition, it is important to note that the studies reviewed were all conducted more than 22 years ago, and considerable changes to CME have been implemented since that time.**
9. Davis, D., O'Brien, M. A. T., Freemantle, N., Wolf, F. M., Mazmanian, P., & Taylor-Vaisey, A. Impact of formal continuing medical education: do conferences, workshops, rounds, and other traditional continuing education activities change physician behavior or health care outcomes?. *JAMA*. 1999; 282(9): 867-874. <http://www.ncbi.nlm.nih.gov/pubmed/10478694>

#### Summary and Key Findings

- The authors reviewed studies of CME interventions on physician performance and healthcare outcomes that were published between 1993 and 1999. Fourteen studies were identified which included 17 interventions that could be characterized as didactic, interactive or mixed.
- The authors found that nine of the 14 studies found positive changes in professional practice, and three of four interventions altered health care outcomes in one or more measures.
- The authors conclude that their "data show some evidence that interactive CME sessions that enhance participant activity and provide the opportunity practice skills can effect change on professional practice and, on occasion, healthcare outcomes. Based on a small number of well-conducted trials, didactic sessions do not appear to be effective in changing physician performance."
- The authors note that didactic CME "may change other elements of competence, such as knowledge, skills, or attitudes, or may act as predisposing elements to change, even though

didactic lectures by themselves do not play a significant role in immediately changing physician performance or improving patient care.”

- **BOTTOM LINE:** Based on studies of CME from 16 to 23 years ago, the authors offer clear support that interactive CME can be effective in improving clinical care and patient health. The authors do not make any statements suggesting that periodic examinations would be a better means to improve clinical care or patient health.

10. Bloom, B. S. Effects of continuing medical education on improving physician clinical care and patient health: a review of systematic reviews. *International Journal of Technology Assessment in Health Care*. 2005; 21(03): 380-385. <http://www.ncbi.nlm.nih.gov/pubmed/16110718>

#### Summary and Key Findings

- This paper reviewed studies on CME effectiveness published between 1984 through 2004. It included 26 systematic reviews that examined the effects of CME techniques on physician clinical-care processes and patient health outcomes.
- Based on those reviews, the authors found that “didactic techniques and printed materials alone clustered in the range of no-to-low effects, whereas all interactive programs exhibited mostly moderate-to-high beneficial effects.”
- The authors concluded that “no single approach to professional education works best under all circumstances” and that “educators must use approaches that focus on teams and organizations...”
- The authors also find that “clear models exist that can improve the likelihood of successful integration of new knowledge into clinical practice,” including having “valued members transmitting the information, targeting group interests and motivations, using collaborative teamwork, tailoring interventions to audience needs, and enlisting peer and senior management support.”
- **BOTTOM LINE:** Based on studies of CME conducted between 12 and 32 years ago, the authors offer clear support that many types of CME are effective in improving clinical care and patient health, and suggest the most effective models for CME. The authors do not make any statements suggesting that periodic examinations would be a better means to improve clinical care or patient health.

11. Committee on Planning a Continuing Health Care Professional Education Institute, Institute of Medicine (U.S.), National Academy of Sciences. *Redesigning Continuing Education in the Health Professions*. Washington, D.C.; National Academy of Sciences; 2010. National Academies Press. <http://www.ncbi.nlm.nih.gov/books/NBK219811/>

#### Summary

- This policy paper recommends improving continuing healthcare professional education by creating a public-private institute for continuing health professional development under the auspices of the Department of Health and Human Services.
- They identify the following key concerns about current continuing healthcare education (CE):
  - Healthcare professionals and employers tend to focus on meeting regulatory requirements when selecting CE.
  - Current CE is dominated by didactic learning that may not be relevant to the clinical setting.

- The inability to draw definitive conclusions about the effectiveness of specific CE methods has clouded discussions about the larger value of continuing education for health professionals.
- Commercial (pharmaceutical and medical device company) funding of CE has raised concerns about conflicts of interest. [Note: This report was developed before the passage of the Sunshine Act.]
- Regulations vary widely by specialty and by state with regard to the number of CE credits required for profession-specific licensure, certification, and credentialing.
- In addition to the creation of a national, government-sponsored institute for continuing health professional development, the committee recommends that continuing education efforts should bring health professionals from various disciplines together in carefully tailored learning environments.
- **BOTTOM LINE: This paper outlines recommendations for improving continuing education for the full spectrum of healthcare professions by creating a national, government-sponsored institute to conduct research and foster improvements. It does not suggest that continuing education is an inherently poor way to improve skills or fill knowledge gaps. Nor does it include any findings or recommendations related to lifetime repeated testing as a necessary or preferable means to improve skills or fill knowledge gaps of health professionals.**