



The Comparative Effectiveness of Specific Professional Educational Tools for Correcting Knowledge Gaps among Practicing Neurosurgeons

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Introduction

Continuing medical education for neurosurgeons derives from a variety of sources. Online educational tools, including interactive webinars, are of increasing importance. Our goal was to compare the effectiveness of self study, webinars, and live course educational tools to address gaps in neurosurgical knowledge amongst practicing neurological surgeons.

Methods

Knowledge gaps among neurological surgeons were identified using Self-assessment in Neurosurgery (SANS; 2011-2013) questions, CNS Webinar pre-test questions (2012-2013), and the CNS Maintenance of Certification (MOC) live course pre-test questions (2013). A knowledge gap was defined as a question in which 30% or more of examinees selected an incorrect answer. A knowledge gap was considered resolved on subsequent examination if greater than 70% of respondents answered correctly.

Results

Overall, 209 knowledge gaps were identified from a total of 449 question pairs (SANS - 238 question pairs, CNS Webinars - 126 question pairs, CNS MOC live course - 40 question pairs). Radiosurgery, neuro-otology, and ICU management were associated with the largest number of knowledge gaps. 112 (53.6%) knowledge gaps resolved on retesting following exposure to an educational tool. Live courses were associated with the highest percentage (88.2%) of resolved knowledge gaps, followed by interactive webinars (70.3%) and self-study (SANS) (59.6%) (P = 0.04) (Figure 1). Similarly, the MOC live course was associated with 36.9% improvement in the total number of questions answered correctly (compared to pre-testing), followed by webinars (28.4%) and self-study (7.1%) (Figure 1).

Conclusions

We demonstrate that current educational methods result in a 50% reduction in knowledge gaps amongst practicing neurosurgeons. Although online methods are becoming more prevalent, live courses may still represent the most efficient method of educating practicing neurological surgeons. Further studies will be important to optimize continuing neurosurgical education.

Learning Objectives

1. Describe how different educational tools can be used to address gaps in neurosurgical knowledge.
2. Discuss the different results of educational tools used to address knowledge gaps among neurosurgeons.

