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Research Article

Preparation Strategies for the American Board of Anesthesiology In-Training Examination and Indicators of Success: A National Survey

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Preparation for the American Board of Anesthesiology written examination (ABAWE) is a significant component of residency training effort.

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Abstract

Methods: We conducted a nationwide survey of anesthesiology residents to assess the preparation for the Anesthesiology In-Training Examination (ITE) and to evaluate the success rates of various preparation strategies. Specifically, the questions were designed to further investigate residents 1) who's study techniques performed by those that performed greater than the 75th percentile, 2) that had a large improvement in examination on the ITE or 3) that passed the American Board of Anesthesiology Written Examination (ABAWE) on their first try.

Results: Residents that started off performing well during residency tended to continue to perform well. More than 1/3 of respondents reported no routine study time. Cramming was a common preparation strategy, but more time spent studying resulted in better performance. There was not a statistically significant difference in performance based on gender or textbook choice.

Conclusions: We conclude that a reading and question based preparation strategy employed throughout residency is the most effective way to ensure passing the ABAWE. More studies are needed to determine the most effective strategies for the resident population at large.

Keywords: American Board of Anesthesiology; In Training Examination; Anesthesiology Resident Study Strategy; Board Review; Anesthesiology Resident Study Techniques

Introduction

Most residency programs place an emphasis on preparation for the certification examination for the relevant board in that given specialty. Preparation for the American Board of Anesthesiology written examination (ABAWE) is a significant component of residency training effort, especially after the intern year of training has been completed. While board scores from medical school or factors considered during interviews has previously been thought to be a significant predictor of success, this has been shown to not necessarily be accurate [1-3]. In anesthesiology resident training, the American Board of Anesthesiology (ABA) administers a yearly examination, called the in-training examination (ITE), at a fixed date on a yearly basis starting during intern year. The content of this examination closely reflects the content of the actual ABA examination that a graduating senior will see when they sit for certification. Contrary to pre-residency predictors of success, there is data suggesting a relationship between ITE performance during residency and success

rates upon initial attempts to pass the ABAWE [4,7]. Furthermore, residents that spend 10.5 hours per week studying have improved success rates on the ITE [5]. Professional behavior is another known factor to correlate with increased clinical knowledge [6]. Given the importance of 'in-training' and board examination preparation, there is a relative paucity of literature assessing the preparation strategies that anesthesiology residents use for this purpose? Strategies to prepare for the examination are of great interest to residents, and many times the actual strategies are dependent on institutional culture. Our survey of anesthesiology residents is intended to assess both the recent trends in preparation for the ITE and to evaluate the success rates of the various strategies utilized by anesthesiology residents throughout the United States (US).

Methods

A survey was sent to all anesthesiology residency programs in the US via program director e-mails listed on the ACGME website. Surveys were electronically available from June 1 to July 30, 2012. Specifically, the questions were designed to further investigate residents 1) who's study techniques performed by those that performed greater than the 75th percentile, 2) that had a large improvement or 3) passed the ABAWE on their first try. Copies of the study questions are available in Appendix 1. This study was exempt from Institutional Review Board (IRB) review in that it is research involving a survey of public behavior. Descriptive statistics were used for most results, and inferential statistics were completed with the Chi-Squared test for categorical variables (R Program, http://www.r-project.org/)

Results

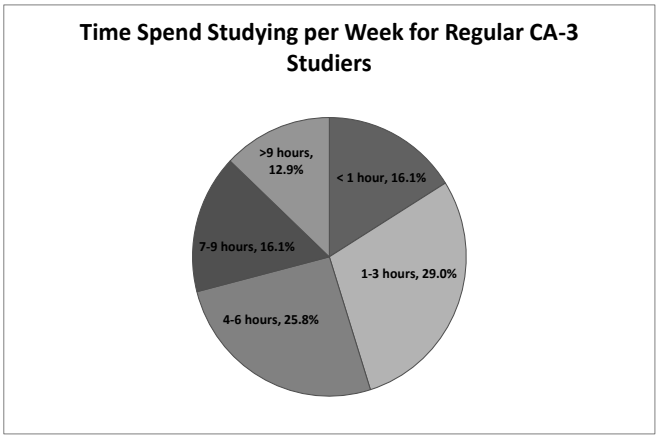
174 residents began the survey, and 154 (88.5%) completed it. Demographic information regarding the respondents is included in Table 1[a].

Table 1

Respondent	% (n)
Male	65.1 (114)
21-29 years of age	42.3 (74)
30-39 years of age	54.3 (95)
>40 years of age	3.4 (6)
CA-1	34.9 (61)
CA-2	34.9 (61)
CA-3	27.4 (48)
CA-4 Fellow	2.9 (5)
Other (please specify)	0 (1)
Single	30.9 (54)
Married	37.1 (65)
Married with children (children living at home)	31.4 (55)
Married with children (children not living at home)	0 (0)
Divorced/separated/widowed with children living at home	0 (1)
Northeast	14.3 (25)
Midwest	22.3 (39)
South	59.4 (104)
West	4.0 (7)

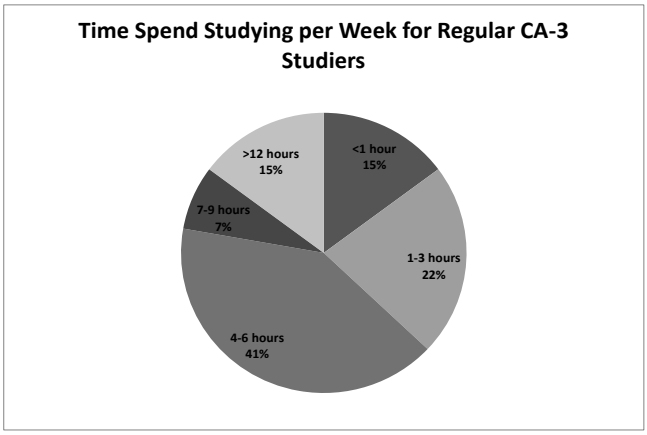
Details of each of the responses are unabridged in Appendix 2; the following is a summarization of the most pertinent results obtained. When including For the CA-1 year, the 33.9% of respondents (33.9%) achieved greater than the 75th percentile. For the CA-2 year, 20.7% achieved greater than the 75th percentile. During CA-3 year the 10.3% achieve greater than the 75th percentile. 9 of 10 post-graduates passed the ABAWE on the first attempt. The top three study materials used included 'Hall', 'Morgain & Mikhail', and 'Baby Miller'. When study materials where stratified by the top three by year of training, CA-1 year included 'Hall', 'Morgain & Mikhail', and 'Baby Miller', CA2 year included 'Hall', 'ACE' and 'Morgain & Mikhail', and CA-3 year included 'Hall', 'ACE', and 'Big Blue'. 11 respondents (6.5%) attended Niels Jensen's board prep course; otherwise, 158 (94%) respondents did not attend a review course. The general consensus of board review courses was that they are moderately helpful based on the comments.

Figure 1: Study Patterns for CA-3s who reported a regular study pattern



With regards to study habits, cramming vs. studying were evenly distributed (39.5% - 47.2% range, the highest fraction of "crammers" studied on a regular basis in CA-1 year). The vast majority studied between 1-6 hours/week regardless of the year of training. Most crammers studies between 1-6 hours/week (53.5%) for a period of less than 2 months regardless of the year of training. Most applicable respondents (67.3%) did a combination of regular studying with cramming the last month prior to the actual ABAWE, and most (91.1%) studied alone and at home (75.3%). More than a third of residents (37.7%) had no routine study time. While faculty mentorship was common (84.8%), relative few respondents found mentor's advice helpful to them in preparing for the examination (33.5%).

Figure 2: Study Patterns for CA-3s who reported a 'cramming' study pattern



There was a strong preference to the presence of a learning

curriculum, particularly for subspecialty rotations.

For respondents that achieved significant improvement (>30% increase in score) in their ITE performances, studying consistently, earlier (>8 weeks before the examination) and inclusion of Hall or ACE questions was reported. For respondents who scored >75% percentile in any given year, 'ACE' (18), 'Morgan and Mikhail' (17) and 'Baby Miller' (11) where the most common texts cited as being the main source for preparation. The same three texts were cited by the 3 responds that passed the ABAWE on the first attempt and reported their texts used for preparation.

Following analysis of the responses, respondents who did well CA-1 year were more likely to do well CA-2 and CA-3 year, and if good performance CA-2 year was likely to translate into the same CA-3 year ($p < 0.001$). Female respondents did not perform better than men ($p = 0.13$), positive marital status did not improve performance ($p = 0.34$), there was no different based on textbook choice between 'Hall' and 'Morgain & Mikhail' ($p = 0.41$). Cramming for more time (> 8 weeks) increased the likelihood of improving performance ($p = 0.048$) and respondents from the South performed better ($p = 0.013$).

Discussion

This project described as an analysis of preparation strategies for the ABA In-Training Examination among clinical anesthesiology residents. The baseline concept for this project was drawn from an initial survey completed in 2011 that included only University of Texas Medical School at Houston anesthesiology residents. The survey was modified to reflect trends based on demographic characteristics in the 2012 survey. The goal of this study is to determine the most useful resources and study habits based on those who scored well on the ITE. Our respondent pool included individuals with a wide variety of ITE scores, study strategies and preparation resources as outlined in Appendix 2. Our overall response rate for the percentile score makes generating precise conclusions based on score more difficult as it limits our sample size. Considering this limitation, residents with better initial scores were statistically more likely to have better scores toward the end of training. It is presumable that this trend is consistent with previous studies correlating ABAWE passage with USMLE scores [1-3]. Demographic factors such as age, gender and marital status did not have an effect of ITE or ABAWE performance.

Many of the behavior trends that we otherwise observed did not affect long term performance, including cramming or textbook choice. The amount of study time was quite variable. However, since more cramming was found to be beneficial in performance, it is likely that more studying in general would improve performance. The introduction of the Basic ABA examination may result in lower rates of "cramming"; this trend will need to be further evaluated in the future once the examination comes online in 2014. While we found a statistically significant benefit from being in the south, our study is underpowered to draw any inference from this result.

It is clear that 'Hall' (Anesthesia: A Comprehensive Review, Brian Hall, et al), 'ACE Questions' (Anesthesiology Continuing Education (ACE) Program, American Society of Anesthesiologists), and 'Baby Miller' (Basics of Anesthesia, Ronald Miller, et al) are heavily used by successful residents in ITE examination preparation.

Conclusions

In our limited study, we found that residents in the south who started off performing well on the ITE generally did well on the ITE throughout residency. A combination of text material and practice questions is helpful in preparing effectively on the ABAWE and the ITE and should be part of any study strategy for such examination preparation. More time studying is a positive factor in performing well. We conclude that, for southern residents, a reading and question based preparation strategy employed throughout residency is the most effective way to ensure passing the ABAWE. More studies with greater participation are needed to determine the most effective strategies for the resident population at large.

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Essentials

- Early success on the ABA ITE correlates with later success on the ABA ITE in later years.
- A combination of text and practice questions likely lead to increased success on the ABA ITE.
- Increased actual time in study is superior to 'cramming'.

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