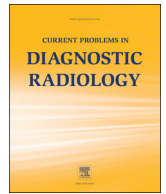




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Resident Perspectives of an Interactive Case Review Following Independent Didactic Study as a Method of Teaching a Pediatric Imaging Curriculum

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Purpose: The ABR has recently changed the format of the board examination, in which the oral examination was replaced by a computer based multiple-choice test. The purpose of this study was to determine resident's perceptions of a new conference resembling the new ABR format.

Methods: Residents were requested to review a series of didactic pediatric imaging presentations prior to attending case conference. During conference, unknown cases reflecting the subject matter from the didactic presentations were presented along with multiple-choice questions. We then surveyed resident perspectives after each case conference.

Results: Between 14 and 18 residents were surveyed at the end of each subspecialty case review presentation. About 94% of resident respondents felt that the independent didactic study followed by an interactive case review session would better prepare them for the ABR certification exams, compared to didactic lectures alone. Furthermore, 95% of the respondents indicated that they preferred the independent didactic review followed by interactive case review versus didactic lecture alone. Most the respondents (85%) felt that combining independent didactic review with interactive unknown case sessions made the material more interesting and provided greater understanding of the material. There was no statistically significant difference in the distribution of answers across the subspecialty sessions ($p > .05$).

Conclusion: Radiology residents favorably reviewed the combination of independent review of didactic material prior to interactive case review. Material presented in this fashion is felt to be more interesting and is thought to result in enhanced understanding of pediatric radiology material.

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Introduction

Structured radiology resident education has traditionally occurred in the form of didactic lectures and "hot seat" type conferences, in which residents demonstrate their ability to interpret unknown cases while being questioned by the presenter. The latter format most closely resembles the old format of the American Board of Radiology (ABR) oral examination previously held in Louisville, KY.¹

However, the ABR has recently changed the format of the board examination.² Among other significant changes, the oral examination was replaced by a computer-based multiple-choice examination.² Currently, it consists of 2 examinations, one taken at the end of the third year of residency, and the other 15 months after residency completion.³ The new board structure led to a number of changes in residency training, including modified residency curriculum and board preparation.⁴⁻⁷ At the same time, educators are turning to audience response systems to provide student interaction with traditional lecture formats to enhance didactic learning.⁸⁻¹²

At our institution, resident conferences occur twice daily and consist of 45-60 minute sessions in the morning and at noon. At our institution, residents are expected to attend at least 60% of conferences throughout the academic year. The format for these conferences is dependent on the presenter and resident preference. The department emphasizes the use of an audience response system (Turning Point Technologies or RSNA Diagnosis Live) in an effort to more closely resemble the new format of the ABR examination. The purpose of our investigation is to analyze resident's opinions of a conference format resembling the new ABR examination, using case review sessions with an anonymous audience response system (Turning Point Technologies) after independent didactic review. Given our experience at a large academic residency program, we hypothesize that case review sessions with an anonymous audience response system are preferred by diagnostic radiology residents and may improve resident's perceptions of educational conferences.

Materials and Methods

First, fourth-year residents were provided a series of 5 pediatric imaging presentations in an electronic format (Microsoft PowerPoint). The presentations were organized by the following subspecialties,

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namely, musculoskeletal, genitourinary, gastrointestinal, neurologic, and cardiothoracic imaging.

We requested residents to review these presentations before attending conference. During conference, unknown cases reflecting the subject matter from the independently reviewed didactic presentations were presented along with multiple-choice questions. Each subspecialty case review session consisted of 30 unknown cases (resulting in a total of 150 cases reviewed across the 5 pediatric subspecialties). One attending (S.D.) presented all of the case review sessions. We found that two or three 45-60 minute scheduled conference sessions were required to review each of the subspecialty case sets.

Residents provided anonymous answers to the multiple-choice questions using their audience response remotes from Turning Point Technologies. Rationales for the correct and incorrect answers were reviewed and discussed before continuing to the next unknown case. More time was spent on the explanations of cases that had a lower overall correct response rate. The presenter requested that the format of the conference remain informal, in an effort to promote discussion.

At the conclusion of each subspecialty case review session, the residents were asked to answer a series of questions regarding their experience with the independent study and interactive case review session, also using the audience response system (Turning Point Technologies). Responses were anonymous and no personal identifiers were collected through the session. Results were averaged across all 5 of the case review sessions. Statistical analysis was performed aggregated data from all respondents. We used SAS 9.4 software (SAS Institute, Cary, NC) for the analysis of the data and all statistics. A Friedman one-way analysis of variance (ANOVA) statistic was performed on each of the subspecialty case review presentations. Our institutional review board

waived review of this study, as participation in the survey was voluntary and all responses were completely anonymous.

Results

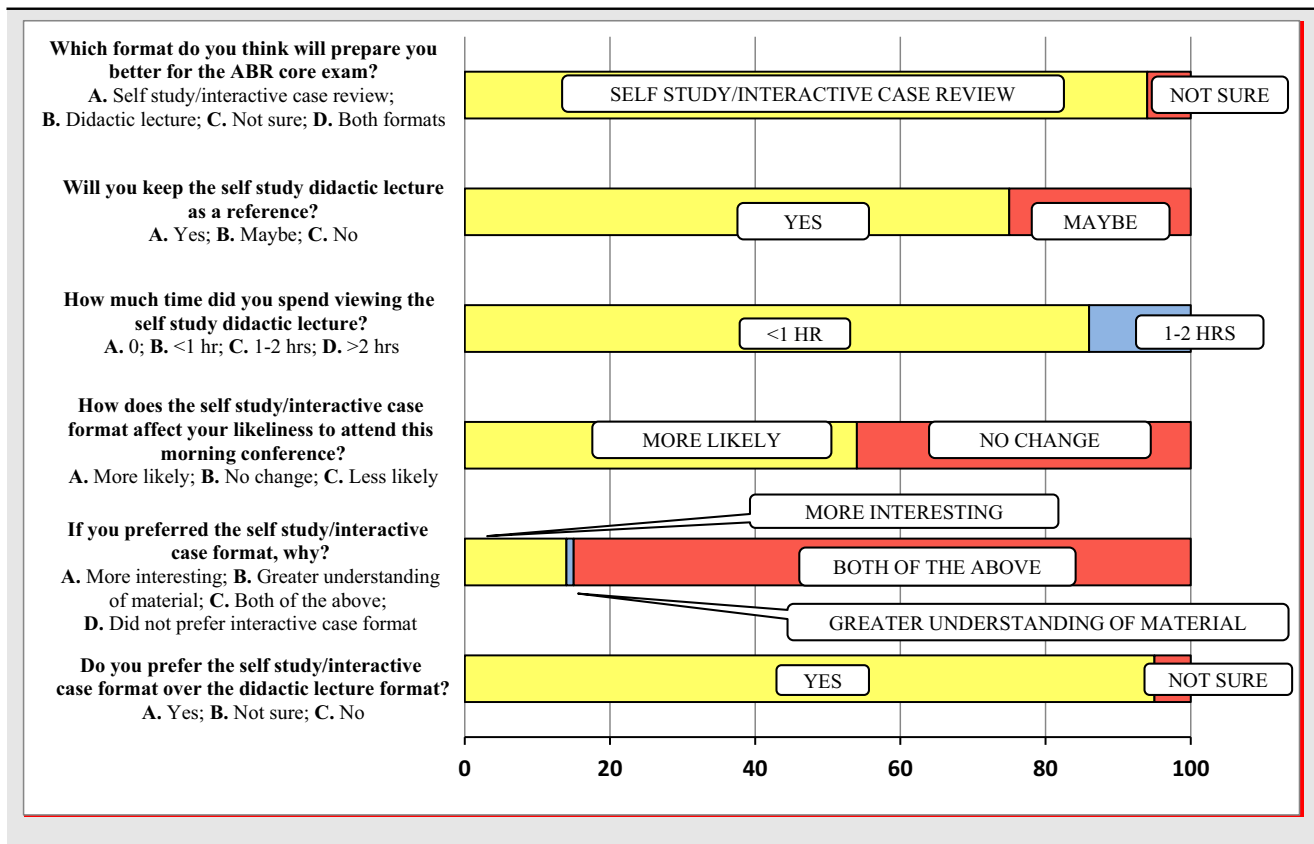
Between 14 and 18 residents (from a total of 38 possible radiology residents) were surveyed at the end of each subspecialty case review presentation. There was an average of 15 residents responding for the musculoskeletal sessions (39% response rate), 16 average resident responses for genitourinary (42% response rate), 14 average resident responses for gastrointestinal (37% response rate), 17 average resident responses for neurologic (45% response rate), and 18 average resident responses for cardiothoracic imaging review sessions (47% response rate). The total responses were collected and analyzed across the 5 case review sessions.

The following is the performance data for each of the subspecialty sessions: 79% correct response rate in musculoskeletal imaging, 75% correct response rate in genitourinary imaging, 81% correct response rate in gastrointestinal imaging, 74% correct response rate in neuroradiology, and 78% correct response rate in cardiothoracic imaging. Results of the final survey are shown as a weighted averaged across all 5 of the case review sessions (Table 1).

Question 1: Which Format do You Think Will Prepare You Better for the ABR Core Examination?

On average, 94% of resident respondents felt that the independent didactic study followed by an interactive case review session would better prepare them for the ABR certification examinations, compared with didactic lectures alone.

Table 1
Weighted average response to 5 overall questions regarding resident opinion on a combination of independent didactic study before interactive case review



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