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Does Integrated Practice Guideline Testing in Gastroenterology Fellowship Training Improve Fellows' Education?

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ABSTRACT

Background: Multiple professional societies have issued practice guidelines that provide up-to-date evidence-based recommendations and expert opinions on patient care in the field of gastroenterology (GI). While most physicians are aware that formal guidelines exist, these GI guidelines have not been integrated into academic training curricula in most of the top-ranked GI fellowship programs.

Methods: Two fellows in the Ochsner GI fellowship program (the control group) reviewed 14 current American Society of Gastrointestinal Endoscopy guidelines deemed essential for GI fellowship training and wrote 200 questions based on these guidelines. Four additional fellows (the experimental group) had no knowledge of which articles would be tested. A 14-week curriculum focused on reviewing the guidelines. All 6 fellows took a pretest before the guideline review and then took a postreview test. All of the participating GI fellows completed a survey evaluating the perceived effectiveness of the formal guideline testing.

Results: The experimental group had a 33% improvement in test scores between the pre- and posttest, while the control group had a 7% improvement. The survey showed that 100% of the fellows felt more secure in their knowledge of the guidelines and would recommend that this learning format be implemented into the annual academic curriculum. All also agreed that this format provided evidence-based knowledge to improve patient safety and provide optimal patient care.

Conclusion: We plan to continue formal practice guideline reviews in our fellowship and believe this format would benefit other medical training programs as well.

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INTRODUCTION

Currently, 3 major American societies have published guidelines and recommendations for clinical practice in the field of gastroenterology (GI): the American College of Gastroenterology, the American Gastroenterological Association, and the American Society for Gastrointestinal Endoscopy (ASGE).[1-14] Although these societies have been publishing these guidelines since 1996, many of these documents have been produced in the past 10 years. Practitioners in the GI field support these guidelines because they are derived from evidence-based medicine or are recommendations from a consensus of experts in the field and are intended to assist providers in delivering optimal care. While the validity and importance of these guidelines are not disputed, most of the top-ranked training programs do not incorporate guideline review into their formal didactic curricula. We contacted the top 10 GI fellowship training programs—as ranked by 2012 *U.S. News & World Report*[15]—and found that only 1 of the 10 centers currently employs formal guideline review and testing.

The ASGE currently lists more than 70 guideline papers under its standards of practice that are available to training and practicing gastroenterologists. We designed an integrated guideline review that used formal testing of 14 current ASGE guidelines deemed essential for GI fellowship training to determine if this review format would improve fellows' knowledge and provide an avenue to objectively evaluate their knowledge.

METHODS

The GI program director and 2 fellows selected 14 guideline articles listed on ASGE's website as stan-

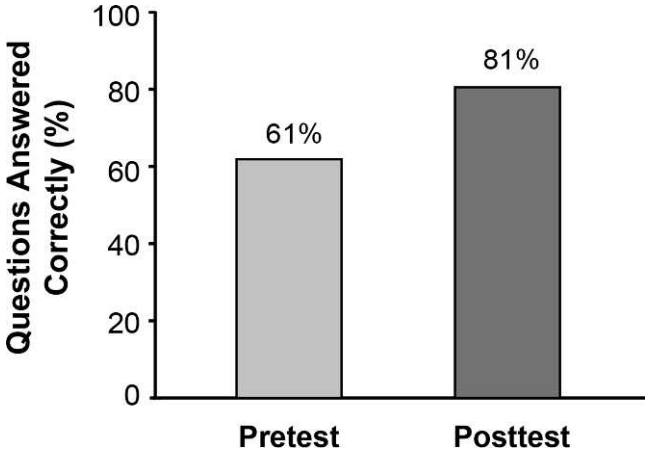

Figure 1. Change in correct answers for the experimental group before and after the guideline review.

dards of practice. We considered these 14 articles to represent fundamentals of GI practice that should be mastered during a GI fellowship. The 2 fellows (the control group) reviewed the articles and developed 200 board-style review questions (with an average of 14 questions per article) pertaining to important learning points. The fellows randomly assigned the questions to either the pretests or posttests, for an average of 7 questions per test. Four additional fellows from a single GI fellowship program volunteered to participate in this trial and comprised the experimental group. They had no previous exposure to the guideline articles unless they had previously independently reviewed the articles.

During the 14-week curriculum, at the beginning of each week, the 4 fellows took a pretest prior to receiving the corresponding guideline article. We asked them to review the article and encouraged them to discuss the contents among themselves and with the staff physicians. At the end of the week, they took a posttest consisting of original questions that had not been used in the pretest. The 2 fellows who wrote the questions also participated and were blinded to the other writer's questions. The control fellows had no exposure to the other fellow's questions, and all questions were placed into a question pool with random assignment to either the pretest or posttest. These pre- and posttest questions were taken by both the control and experimental groups during the course of the trial curriculum.

Upon completing the 14-week curriculum, all 6 fellows reviewed the 200 questions and answers. They also reviewed the guideline articles for additional significant points that were not included in the test questions. After this review, we asked all of the fellows, both control and experimental groups, to complete a survey evaluating the following 7 statements:

- Do you feel more comfortable with current guidelines and recommendations from professional societies regarding the covered topics?
- Did the structured weekly questions and articles help ensure your review and assimilation of the guidelines?
- Would you recommend this guideline review format to other fellowship programs?
- Do you think the topics covered in the guideline review have affected your clinical practice?
- Have you witnessed a patient care encounter in which current guidelines were not being followed by your program or staff?
- Has this review format encouraged you to review other current guidelines to assist in your clinical practice?
- Do you feel this guideline review provided you tools to improve patient safety and provide optimal patient care?

The fellows gave each statement a numerical score on a scale of 1-5, with 1 indicating that the fellow strongly disagreed with the statement, 2 indicating that the fellow disagreed, 3 indicating that the fellow neither agreed nor disagreed, 4 indicating that the fellow agreed, and 5 indicating that the fellow strongly agreed. Each statement on the survey could be scored up to 5 points. Therefore, the maximum survey score was 35 points (5 points $\times$ 7 questions), and cumulatively the 6 fellows' maximum survey scores added up to a possible 210 points (35 $\times$ 6). Fellows completed this survey anonymously, and the scores for the 7 questions were tallied to generate a percentage of the average optimal score. The optimal score (210 points) represented the gold standard for the most effective teaching modality regarding these article guideline points.

RESULTS

The 4 fellows in the experimental group, who were unaware of which guidelines would be reviewed, increased the number of correctly answered questions from 61% on the pretest to 81% on the posttest (Figure 1), resulting in a 33% improvement in correctly answered questions after the guideline review. The 2 fellows comprising the control group who initially reviewed each article and generated their own unique questions while being blinded to the other writer's questions also improved their test scores from 88% to 94%, a 7% improvement in correctly answered questions (Figure 2).

The educational merit survey with the 7 questions described above in the Methods section resulted in a cumulative optimal score of 200 out of the possible 210 points. This score correlates to 95.24% of the possible perfect score. Interestingly, all 6 fellows gave

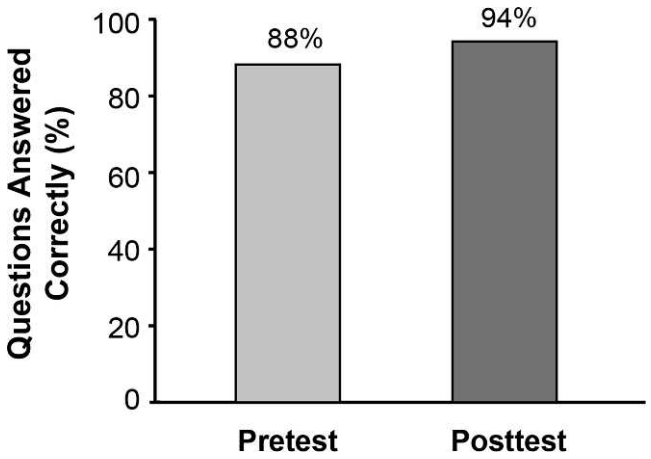

Figure 2. Change in correct answers for the control group before and after the guideline review.

a 5 out of 5 possible points to the final statement regarding improving patient safety and providing optimal care. This result demonstrated the subjective significance of formal guideline review during fellowship training for the surveyed fellows.

DISCUSSION

With the movement to electronic medical records, advancements in clinical research and evidence-based medicine, increased focus on patient safety, and the push to meet the goals of physician quality reporting systems, physicians need to ensure that their knowledge of the standards of practice published for their fields is up to date. Unfortunately, only 10% of the top GI fellowship training programs has formally incorporated a review of current guidelines into the academic curricula. Although these guidelines are available to any practicing physician and to the public at large and can be independently reviewed as needed, we believe that practice guidelines should be somehow incorporated into the formal postgraduate training curriculum. Guideline reviews are the backbone of clinical practice and tend to be a reference for the standard of care.

After participating in a structured 14-week curriculum, the 4 fellows in the experimental group uniformly improved their scores between the pretests and the posttests and achieved a greater level of comfort in implementing the recommendations from the guidelines in their own patient care. The 2 control fellows, who initially reviewed the articles and generated the questions, also improved their scores after the weekly formal review. The experimental group demonstrated a greater improvement than the control group in their posttest scores. We believe these results show that repetition is one of the keys to knowledge retention and a benefit of integrated practice guidelines testing.

Future studies designed to prove statistical significance in test performance after formal guideline review must include an additional control group denied access to the guidelines being reviewed. We felt that a 14-week period of denying fellows access to the guidelines in this study presented us with an unacceptable ethical dilemma because doing so would have delayed fellowship education and possibly compromised patient care in the interim.

This review curriculum also revealed that not all of the guidelines were being followed by either the fellows or the mentoring staff physicians. This finding might be explained by the fact that these guidelines are continuously evolving (with most recommendations having been published in the past decade) and that some of the guidelines include expert opinion rather than true standards of care.

CONCLUSION

This project reminded us that the art and practice of medicine require continuous refreshing of our knowledge base and that a curriculum incorporating current guidelines will encourage both training and mentoring physicians to improve patient safety and provide quality care.

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