



Let the Good Grades Roll: Optimizing Shelf Exam Performance with a Novel Peer-led Comprehensive Review Session

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BACKGROUND:

Medical schools across the United States commonly rely on shelf examinations created by the National Board of Medical Examiners (NBME) for evaluation of students understanding within a particular clerkship or rotation. Use of this examination provides evaluation of student performance and allows for direct comparison to others who completed the examination with the same current level of training. Since this examination is commonly used to test students at the end of clerkship rotations, NBME publishes educational objectives to aid in student learning. In the field of obstetrics and gynecology, the Association of Professors of Gynecology and Obstetrics (APGO) have also established educational objectives for student learning which do not correlate directly with the educational objectives established by NBME. To solve this dilemma, the NBME examination was compared to the APGO educational objectives to determine if the NBME exam was accurately testing knowledge for students who are within their third year of training. This comparison proved that the NBME examination correlated with the educational objectives established by APGO.¹

Even though the NBME examination correlates with the educational objectives established by APGO, students within their third year of training struggle to identify high-yield comprehensive review sources for use when studying for shelf examinations. Students are also challenged with clinical demands with very few hours set aside on a daily basis for studies.² With a wide variety of resources available for use when studying for this examination and the time constraints, it can be quite confusing for students to find a source that provides the information specifically stated by APGO in a concise and comprehensive way. Due to this deficit being present, a high-yield comprehensive review for OB/GYN was created.

METHODS:

A two-hour comprehensive review presentation was created for students who were rotating on the OB/GYN clerkship at the Brody School of Medicine using the APGO educational objectives. To create the review, various resources were utilized including Pre-Test for OB/GYN, Step-Up to OB/GYN, Shelf Life of Obstetrics and Gynecology and the Comprehensive Handbook for Clinicians within OB/GYN to provide up to date information to satisfy the goals established by APGO. Once the information was obtained and documented, a presentation was created in a question and answer format to allow students to use the information presented as both a study tool and as a self-assessment of knowledge. Two surveys, immediately after the review and post-shelf examination, were given to evaluate the usefulness of this presentation.

EXAMPLE:

Comprehensive Review Session Available to Students on Blackboard:
Dictated Presentation
Audio File
PDF File of Information Only

Fertility & Infertility: NBME Objective of Female Reproductive System and Breast

Definition: Inability to conceive after 12 months of unprotected intercourse. Need three things: 1) Ovulate 2) Open Tubes 3) motile sperm.

Regular menses, examination reveals adherent uterus and tenderness on mobilization:

- Diagnosis: Endometriosis

Unprotected intercourse for years, irregular periods, velvety plaques under axillae, recurrent vaginal candidiasis, normal lab values, bilaterally enlarged ovaries:

- Diagnosis: PCOS, failure of follicle maturation
- Treatment Clomiphene citrate

>6 months of unprotected intercourse in a >35 yo is considered infertile due to:

- Diagnosis: Diminished ovarian reserve, evaluate with FSH value

Vascular thrombosis, pregnancy complications, anti-cardiolipin antibody, lupus anticoagulant, anti-beta2-glycoprotein antibody:

- Diagnosis: Antiphospholipid syndrome
- Management: Anticoagulation (heparin, warfarin)

History of PID, infertility due to:

- Tubal scarring and obstruction, evaluate using HSG

Pregnancy Complications: NBME Objective of Obstetric Complications

Severe vomiting, loss of prepregnancy weight, dehydration, orthostatic hypotension:

- Diagnosis: Hyperemesis gravidarum
- Lab Values: ketonuria, hypochloremic metabolic alkalosis, hypokalemia, hemoconcentration.
- Treatment: Admission to hospital, anti-emetics & IV fluids, correct electrolytes.

Encephalopathy, oculomotor dysfunction, postural and gait ataxia, severe vomiting:

- Diagnosis: Wernicke encephalopathy from hyperemesis gravidarum.
- Treatment: Intravenous thiamine followed by glucose infusion

Asymptomatic bacteriuria untreated can lead to: Acute pyelonephritis

- Treatment: Cephalexin, Amoxicillin-clavulanate
- Why are pregnant women more likely to have UTI: Smooth muscle relaxation from progesterone.

Abdominal pain, radiates to the groin, flank percussion tenderness, microscopic hematuria:

- Diagnosis: Renal colic
- Workup: Ultrasound of kidneys and pelvis. (Avoid CT in pregnancy due to radiation risk)

Joint pain, swelling in hands and feet, medical history of SLE, red rash on cheeks:

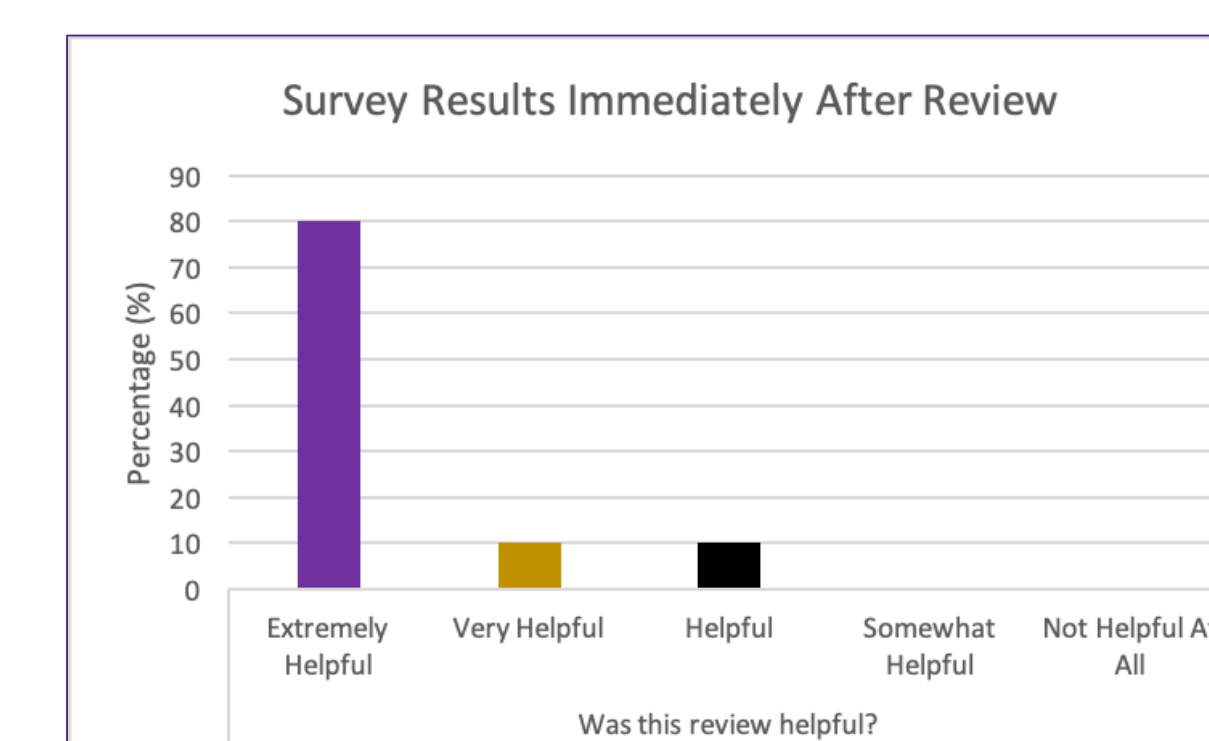
- Diagnosis: SLE Flare

IMPACT/LESSONS LEARNED

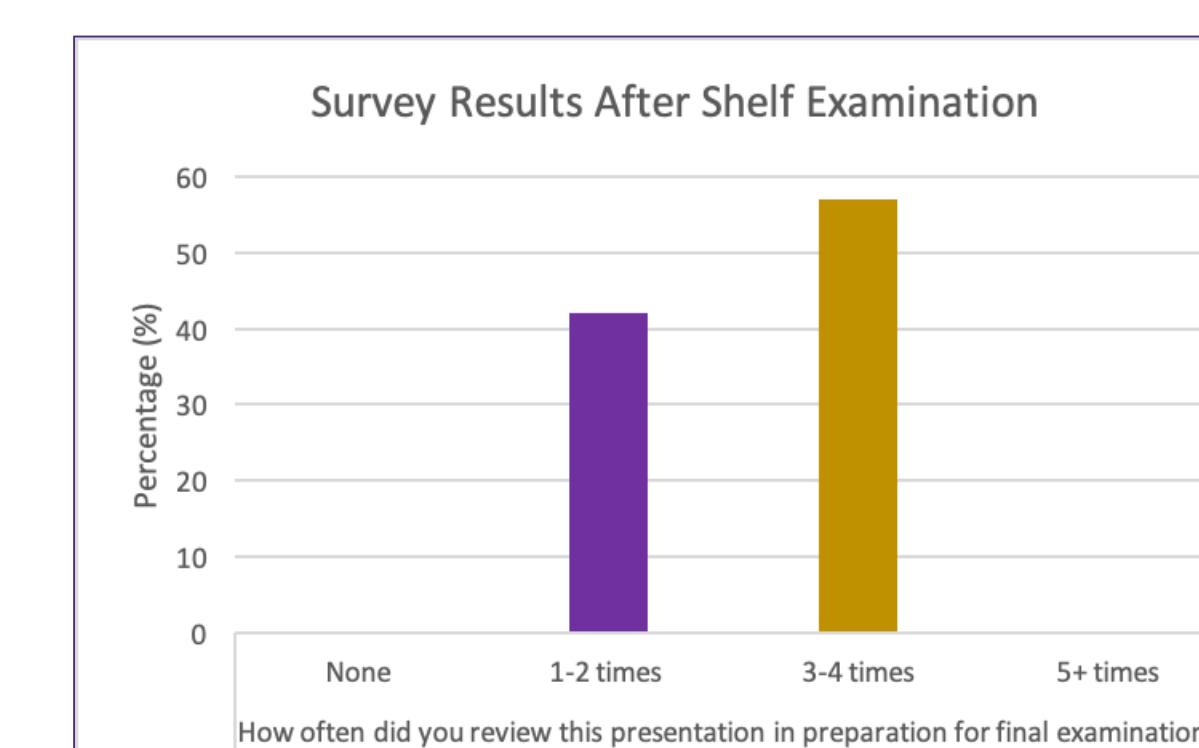
NBME examinations are used in many medical schools across the country to assess student performance in completion of clinical clerkships. Within the field of OB/GYN, there are two sets of educational objectives for third-year medical students by both the NBME and APGO. Since the educational objectives have been proven to be accurately assessed on NBME examinations, a comprehensive high-yield review was created for the OB/GYN clerkship for third year medical students.¹ Surveys that were given immediately after the review session and after completion of the final clerkship examination revealed that this review had positive impacts on overall understanding of OB/GYN concepts as well as examination scores. However, even though positive impacts were observed challenges of adequate evaluation are also considered because performance on end of clerkship examinations are multi-factorial. Overall, we hope that other academic centers will adopt this review for student use in preparation for OB/GYN final examinations.

RESULTS:

The results of this post-review survey revealed that 80% of students stated they found the review to be extremely helpful with 90% of the students stating that they would attend a similar review in the future. With regards to the strengths and weakness of the review, students stated that the review provided comprehensive high yield associations that were detailed and concise, but lacked pictures of commonly tested skin disorders and mnemonics to assist in memory aid.



The additional survey that was sent to students 7 days after completion of the NBME shelf examination, resulted in a 70% response rate. Positive impacts on shelf examinations and overall understanding of OB/GYN high-yield concepts were reported for 85% of students with 57% reporting using the review 3-4 times prior to examination. This survey was also used to assess the quality of the information that was presented and the overall structure of the review. Students reported that according to their own recall of tested topics, no high-yield information was lacking from the review and the structure of the review allowed for repeated study of topics in an easy to reference format.



REFERENCES:

1. Hammoud MM, Cox SM, Goff B, et al. The essential elements of undergraduate medical education in obstetrics and gynecology: A comparison of the Association of Professors of Gynecology and Obstetrics Medical Student Educational Objectives and the National Board of Medical Examiners Subject Examination. *American Journal of Obstetrics and Gynecology*. 2005;193(5):1773-1779. doi:10.1016/j.ajog.2005.08.024.
2. Wirth K, Malone B, Turner C, Schulze R, Widmann W, Sanni A. A structured teaching curriculum for medical students improves their performance on the National Board of Medical Examiners shelf examination in surgery. *The American Journal of Surgery*. 2015;209(4):765-770. doi:10.1016/j.amjsurg.2014.09.036.