Improving Anatomical Knowledge Retention in Medical Students entering the Surgery and Obstetrics and Gynecology Clinical Rotations by Nesting Interactive Modules

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Introduction

- There is a two year gap between learning anatomy and applying it clinically.
- Clinicians feel that the current anatomical education of medical students is inadequate.
- Students do not feel confident in their anatomy knowledge and have difficulty transferring it from the classroom to the clinic.
- Previous data from our own institution quantified this knowledge deficit, specifically for the surgery and obstetrics/gynecology (ob/gyn) clinical rotations.
- Suggestions for improvement include vertical integration or nesting, so that relevant topics are revisited from Year I to Year IV.
- Using principles of adult learning and instructional design, a series of interactive e-modules were created to review clinical anatomy in areas students were found to be weakest.
- The goal of this study is to evaluate the impact of this newly designed method of teaching clinically relevant anatomy to medical students on surgical rotations.
- The surgery curriculum will implement and evaluate the use of interactive e-modules. The ob/gyn curriculum will combine the use of interactive e-modules and hands-on anatomy laboratory sessions.

Methods

- Institutional Review Board approved protocol:
  - MSIIIs at GWUMC (N=189)
  - 20-25 question exam: 15-10 MCQs and 5-10 image labeling
  - Exam had basic science and clinical input
  - These questions were compared against those from the relevant anatomy exams during their first year (t-tests with corrections)
  - Based on this knowledge gap, e-modules were created to review relevant clinical anatomy.

- Two methods of vertical integration were created:
  - Retention at our institution is consistent with national averages
  - Preliminarily, modules appear to be helping students improve knowledge retention
  - Many students find modules effective and useful
  - The largest barrier to module use is not having enough time to use the modules

- During the first week of the surgery and ob/gyn clerkships, a link to a secure website containing the modules is distributed to students.

- Mean surgical anatomy quiz grades by rotation number prior to start of clerkship1
- Mean ob/gyn anatomy quiz grades by rotation number prior to start of clerkship

Results Phase 1

- Preliminary data from our institution quantified this knowledge deficit, specifically for the surgery and ob/gyn clinical rotations.

Conclusion

- Retention at our institution is consistent with national averages.
- Preliminarily, modules appear to be helping students improve knowledge retention.
- Many students find modules effective and useful.
- The largest barrier to module use is not having enough time to use the modules.