

Goal-Oriented Anesthesia Week for MS III Students

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Original Article

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Abstract

Background: Third year medical students at our institution are required to complete a one-week rotation in anesthesia as part of their required twelve week surgery clerkship. During this constrained time, our aim was to provide students with a focused and goal-oriented preview of anesthesiology which would allow students going into various fields to have an appreciation of the field.

Curriculum design: The one-week curriculum is a combination of lecture, simulation, operating room teaching and hands on experience aimed at providing students with some fundamentals of procedural skills and a knowledge base of anesthesia. To address the basic knowledge component, students are assigned a daily topic to review and discuss with their assigned resident mentor. From a procedural perspective, students gain basic airway management and IV skills during a half day in the Electroconvulsive Therapy (ECT) clinic where they primarily learn bag-mask ventilation and peripheral IV techniques. They additionally have a preoperative evaluation lecture and an airway simulation workshop.

Curriculum evaluation At the end of the rotation, students are required to fill out an online survey. Feedback from the survey was used to help further modify the goal-oriented curriculum.

Conclusions: The results of the survey overall revealed students had an overwhelmingly positive experience during their week in the newly designed curriculum. Continued feedback will help us with further curriculum modifications as necessary.

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Background

Third year medical school is a critical time in a medical student's training in which they are exposed to different specialties and determine a future career choice based on their experience within these specialties. Over the past five years, there has been an increase in the number of positions in anesthesiology offered in the match program¹, reflecting a continuously growing field. A few of the reasons medical students choose to pursue anesthesiology include it being a “hands on” specialty involving procedures and an interest in pharmacology and physiology².

In many medical schools, however, exposure to the field of anesthesiology is limited. At our own institution, third year medical students are required to complete a one-week rotation in anesthesia as part of a required twelve week surgery clerkship. Given this very short period of time, it was our aim to expose students to a broad overview of anesthesia by providing a structured curriculum that would address both a set of cognitive and procedural goals. By doing this, our hope was to give students both a hands-on experience and a knowledge base necessary for understanding the basics of anesthesia which, in turn, may encourage students to enter the field themselves.

Additionally, obtaining feedback is a necessary component of any medical school curriculum.³ Previously, a formal assessment tool of the medical student anesthesia curriculum was lacking and we felt it was important to create a tool which we could use to further assess future areas of improvement.

Curriculum Design

The one-week third year medical student curriculum was designed as a combination of lecture, simulation, intraoperative teaching and hands-on experience aimed at addressing both a set of procedural and cognitive goals that covered the basics of anesthesia. The procedural goals of the curriculum include airway management, peripheral intravenous insertion and basics of monitoring. The cognitive goals set forth include pre-operative evaluation, respiratory physiology, cardiac physiology, post-operative pain and basic ventilator management.

At the beginning of their week in anesthesia, students are assigned to a primary resident mentor and are given a welcome email outlining the week's schedule and didactics. To supplement the teaching that occurs within the operating room, we created a set of web-based PowerPoint lectures with topics to be reviewed by the medical student and then discussed with their assigned resident. These topics were meant to address the cognitive goals we set forth, as previously mentioned. Each student is expected to review the assigned topic the night before and answer a few required multiple-choice questions as a form of “self test.” The student prints out a copy of their results from this test and brings it to the operating room the next day to discuss with their resident mentors. These tests are not graded, but are rather used as a discussion point to further teaching that already occurs within the operating room (OR).

From a procedural perspective, students gain basic airway management and peripheral line insertion skills during a half day spent in the electroconvulsive therapy (ECT) clinic, in addition to their time spent in the operating room. The ECT clinic specifically was incorporated as a means of teaching primarily bag-mask ventilation and peripheral IV insertion, both crucial skills in the field of anesthesia. In addition, during the last day of their rotation, the students spend a half a day observing a cardiac case where they learn more about more invasive lines and intraoperative monitoring including transesophageal echo, arterial and central lines and pulmonary artery catheters.

Finally, in addition to the one-week curriculum, there are two afternoon sessions that take place during their surgical clerkship rotation aimed at providing supplemental exposure to anesthesia. This includes an introductory preoperative evaluation lecture and an airway and IV insertion simulation workshop.

Although our primary focus in curriculum development was on revamping the one-week course, students do have the opportunity to further explore subspecialties in anesthesia by choosing a two-week perioperative selective which allows them to rotate within different subspecialties of anesthesia including cardiac, obstetrics and pain medicine. Our hope was that more students may be attracted to this option if their experience during their first week of anesthesia was positive.

Curriculum Evaluation:

An online survey was created to evaluate the curriculum as well as provide feedback to the residents and attendings involved in teaching the medical students. Prior to making these curriculum changes, a previous more limited evaluation was filled out by the students but data on this survey was considered to be inadequate as responses from only 9 students (out of 40 polled, only 22.5%) was available. In addition, previous evaluation data was collected at the end of the surgical clerkship so that students may have gone 3 months before they had the chance to evaluate their experience in anesthesia. It is, therefore, difficult to compare our current evaluations to prior evaluations based on both small sample size and length-time bias. For this reason, the following evaluation data is based solely on the current evaluation format created.

In the most current survey created, a total of 55 students were polled with 40 responses (80% response rate). Return was much higher than the previous evaluation form likely because the survey link was sent at both the beginning and the end of the anesthesia week to encourage completion, rather than at the end of the surgical clerkship. Questions within the survey were either multiple choice or free text. The multiple choice questions were listed as statements such as “I felt intellectually challenged during this rotation” and the student chose to answer along a 5 point rating scale with “strongly disagree” at one end of the spectrum and “strongly agree” at the other end. The first 7 statements were aimed at evaluating the students’ experience with the residents as teachers (see figure 2). The final 4 statements were aimed at evaluating their overall experience during the week and whether or not this may have encouraged them to consider anesthesiology as a future career (see figure 3). Finally, there were free text questions addressing the overall organization of the rotation and ways in which we may improve on this

rotation. Several comments in the free text boxes suggested that students were interested in learning more about ultrasound and advanced monitoring, which became the basis for our incorporating a morning in a cardiac room where students acquired the requested experience.

In addition to evaluating the curriculum, students are evaluated by resident mentors. Mentors are asked to evaluate the student within three main areas: fund of knowledge, professionalism and initiative and desire to learn. This is then used to help complete the final surgery clerkship grade of the student.

Conclusions

The results from the curriculum evaluation, as a whole, suggested students had a positive response during their week and were pleased with the structure set forth. Of interest, 69% of students polled agreed that the rotation made them consider a career in anesthesiology. This was initially part of our goal to encourage students to learn more about the field of anesthesia and potentially consider a career within the field.

Moving forward, we plan to continue collecting evaluations from students as they rotate through the one-week rotation and use their input to further modify the course, as we only had initial responses from 33 students. In addition, we plan to incorporate a feedback tool into the two-week selective to learn more about the strengths and weaknesses of this rotation as well.

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Figure 1. Organization of MS III anesthesia week including targeted cognitive and procedural goals

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	ECT clinic	OR	OR	OR	Cardiac
PM	OR	OR	OR	OR	OR
Cognitive Goals	Basics of clinical respiratory physiology and airway anatomy	Pre-operative evaluation	Postoperative pain management	Clinical respiratory physiology part II with basics of ventilators	Clinical cardiac physiology
Procedural Goals	<ul style="list-style-type: none"> • Basic airway management • Peripheral IV 	<ul style="list-style-type: none"> • Basic airway management • Intermediate airway • Basics of operating room monitoring 			<ul style="list-style-type: none"> • Basics of monitoring

Figure 2. Answers from the survey regarding the students' interactions with the resident mentor they were assigned with for the week.

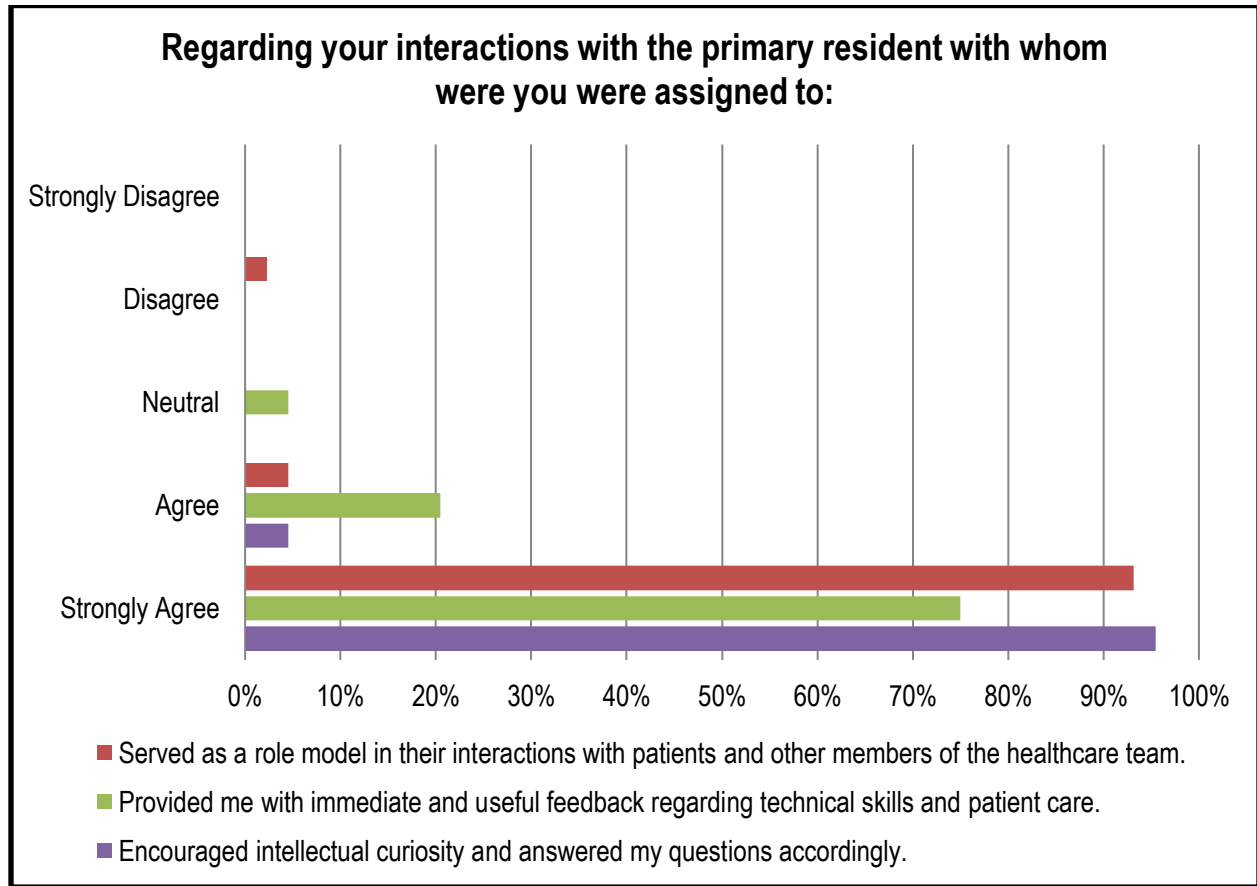


Figure 3. Answers from the survey regarding the students' interactions with the resident mentor they were assigned with for the week (continued).

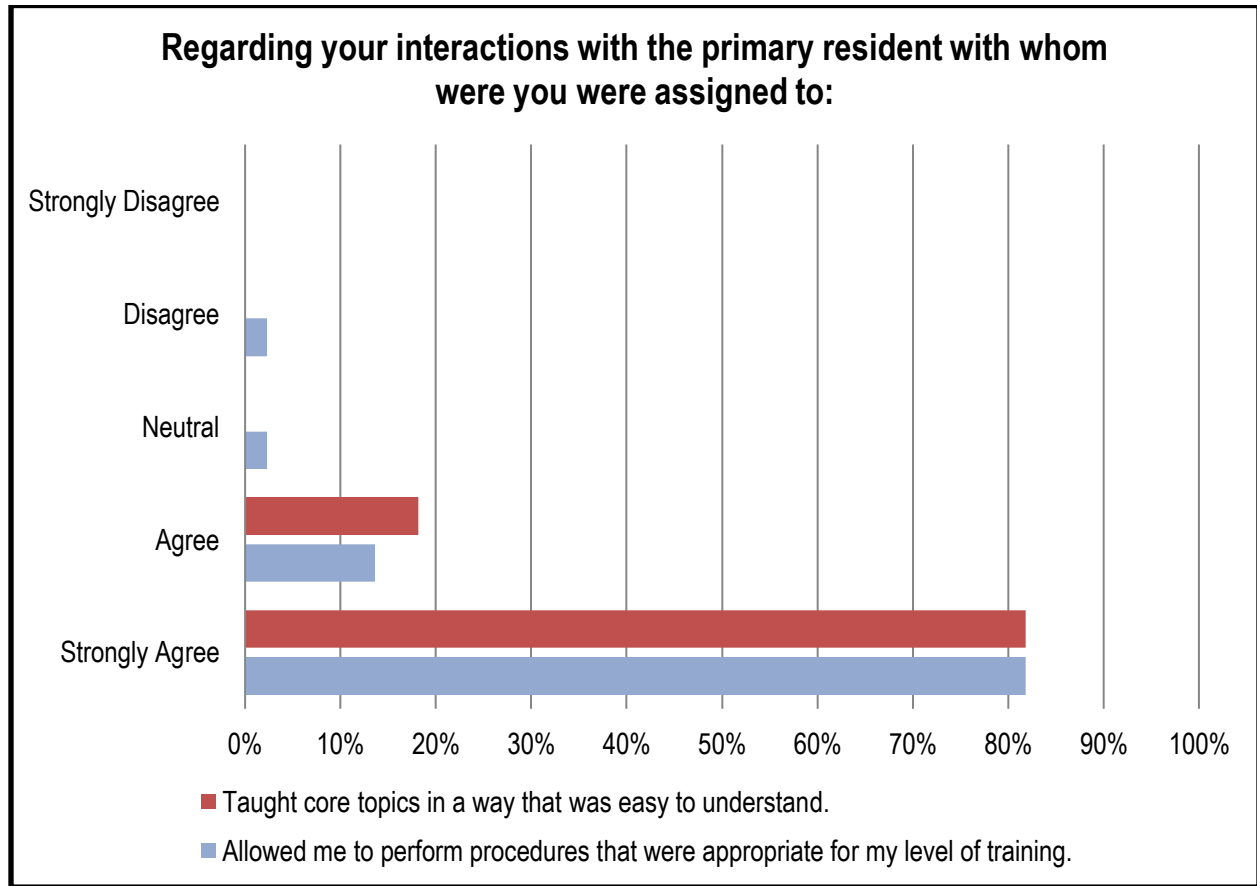


Figure 4. Answers from the survey regarding the students’ impressions of the entire one-week anesthesia rotation.

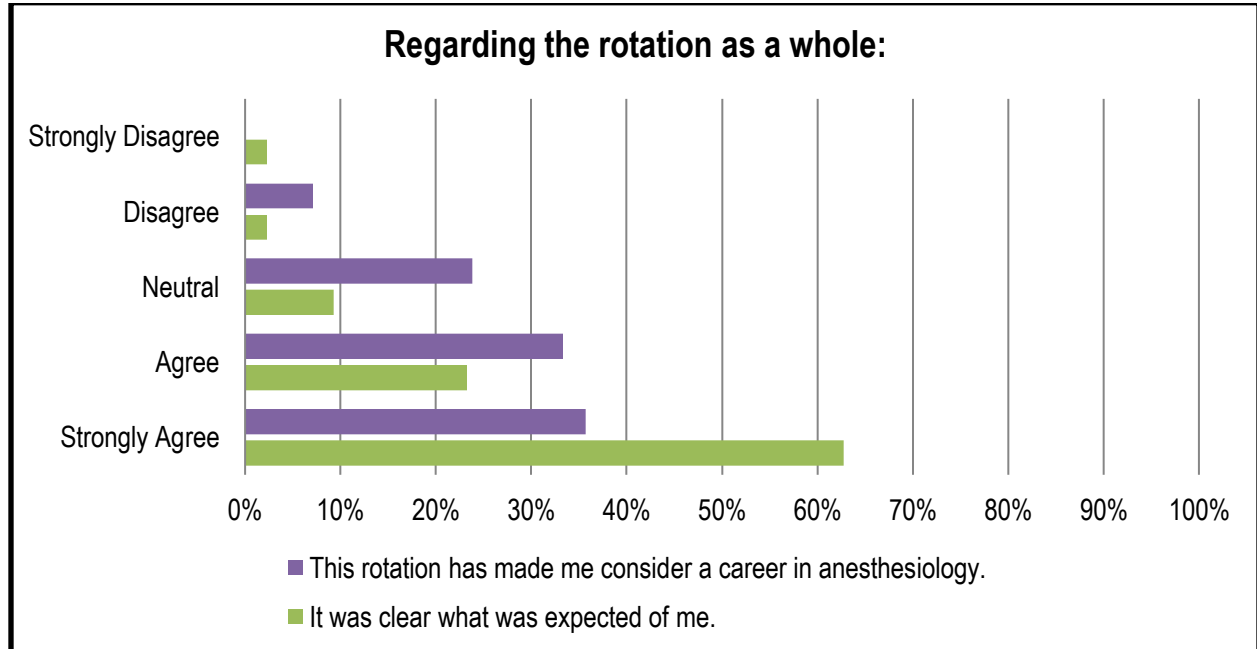


Figure 5. Answers from the survey regarding the students’ impressions of the entire one-week anesthesia rotation (continued).

