

APEP – Anesthesiology Preceptorship Enrichment Program...A Popular Student Curriculum AND a Recruiting Tool?

Amy M. Murray, MD¹

Michael T. Wiisanen, MD²

Original Article

¹Professor, Program Director,
GME CLER Officer,
Department of
Anesthesiology, Loyola
University Medical Center,
Maywood, IL, USA

²Assistant Professor,
Department of
Anesthesiology, Loyola
University Medical Center,
Maywood, IL, USA

Correspondence to:

Amy M. Murry, MD
Department of
Anesthesiology, Loyola
University Medical Center
2160 S. 1st Avenue
Maywood, IL 60153
Phone: 708-216-0421
Fax: 708-216-1249
amurra1@lumc.edu

Abstract

Background: APEP- Anesthesiology Preceptorship Enrichment Program, is a 7-month curriculum for MS1s and MS2s, providing early clinical exposure to anesthesiology. APEP students meet monthly with their anesthesiology preceptors in an intraoperative setting and review basic science lecture material with an anesthesia focus. APEP is a consistently popular annual curriculum, yet its effectiveness as a recruiting tool was unknown. This curriculum was evaluated for its effectiveness in attracting students into anesthesiology.

Methods: Annual surveys were sent to APEP students querying if they were MORE or LESS interested in anesthesiology as a career choice after APEP participation. Because the survey was not anonymous, follow up data was obtained for each MS1 and MS2, confirming their match into anesthesiology. Non-survey data was also reviewed for students' APEP involvement, career choice and match results.

Results: Of the 77 APEP students surveyed from 2006-2010, 54/77 (70%) were MORE interested in anesthesiology as a career choice after participating in APEP and 23 of the 54 (43%) applied to/matched into anesthesiology. Collected data also reinforced APEP's supporting role in developing student interest into the field of anesthesiology. From 2008-2012, of the 45 students who matched into anesthesiology, 28 (62%) were involved with APEP. Since the launch of APEP, there has been a 57% increase in students from the previous five years matching into anesthesiology which is 18 percentage points higher than the national upward trend.

Conclusions: APEP is an educational tool that is effective for attracting students into the field of anesthesiology.

Key words: Anesthesiology, Curriculum, Education, Medical, Career Choice

Financial support: No financial support

Manuscript

Introduction

Early clinical experience for first and second year medical students (MS1/MS2s) has been on an upward trend in U.S. medical schools for the past decade.¹ The Report of the Ad Hoc Committee of Deans from the Association of American Medical Colleges (AAMC) highlights the strategies for affecting reform in medical education, recommending that medical schools present patient-centered clinical experience early in the curriculum. That report also suggested that students be provided with appropriate experiences to acquaint them with various career options available to physicians.² Many of these early clinical experiences have involved community-based physician preceptors in primary care.³ APEP (Anesthesiology Preceptorship Enrichment Program) is a novel preceptorship program for MS1/MS2s, providing them with early clinical exposure to the field of anesthesiology.⁴ APEP offers an integrated curriculum whereby students are taught in the operating rooms by faculty from the Department of Anesthesiology (APEP preceptors), who review basic science concepts with clinical correlates from an anesthesiologist's perspective. Handouts containing familiar lecture diagrams and notes guide the monthly interactions, discussions, and teaching activities between students and preceptors. The students, playing an active role in patient care, experience basic science concepts in a clinical arena. (See Appendix A for monthly topics.) In its seventh year, APEP has been a consistently popular extra-curricular program that exposes medical students to dedicated anesthesiologists serving as preceptors and offers an accurate depiction of the role an anesthesiologist plays in the perioperative setting. Based on survey responses by the students, APEP has also been effective in enriching the students' basic science knowledge in a practical way using an integrated curriculum with clinical correlates. This study was undertaken to evaluate APEP's role as a means to attract students into the field of anesthesiology and to serve as a possible recruiting tool.

Methods

APEP is a seven month curriculum, running from October to April, for MS1/MS2s, integrated with basic science course material. Every August, an e-mail is sent to MS1/MS2s at Loyola Stritch School of Medicine, inviting them to consider participating in APEP, especially if they were interested in anesthesiology, surgery or a surgical subspecialty. The invitation specifies that this program is for students "who think they might be interested in a career in anesthesiology (or surgery or surgical subspecialty)", and for those students "who think they want a closer exposure to the operating rooms from an anesthesiologist's perspective". A follow up reminder invitation is sent one week later via e-mail to those MS1s who signed in at the Anesthesia Interest Group Table at the annual Organizational Fair and to the MS2s who participated in APEP the previous year. On average, over the past seven years, 31 MS1/MS2s have participated per year which comprised about 10-12% of the combined MS1/MS2 classes. An average of 28 anesthesiology faculty participate annually as APEP preceptors, comprising >75% of all attending anesthesiologists at Loyola University Medical Center. Each preceptor is

assigned one or two APEP students, and students have the opportunity to meet with APEP faculty up to seven times in a seven month period.

The vast majority of APEP encounters include 1-2 hours of intraoperative teaching and discussion, and many included hands on participation. The monthly interactions are guided by handouts that contain familiar diagrams from students' basic science lecture notes, enriched by clinical correlates from an anesthesiologist's perspective. Only topics that have a logical clinical correlate that can be taught from an anesthesiologist's perspective are considered for the handouts. For example, when the students are dissecting the head and neck in anatomy lab, the APEP handout for that month includes descriptions of airway structures from anatomy course notes and introduces mask ventilation and direct laryngoscopy as a clinical skills set for students to perform. The APEP handouts are intended to enrich the basic science knowledge in a unique way for students, as we are unaware of any other institutional clinical exposure for MS1/2s that uses actual basic science lecture notes in a clinical setting. The handouts also offer a more consistent teaching experience among student/preceptor encounters.

Each APEP encounter was documented and participation tracked over the seven months. No performance assessments were made of the students, nor do they get credit on their transcripts for participation. Students included their APEP experience on their Curriculum Vitae as an extracurricular program. The students were sent a survey (Appendix B) at the conclusion of APEP. The survey was designed by the APEP faculty director and intentionally requested the medical students' name. Students filled out open ended questions about their individual APEP experience, including whether or not they were MORE interested in the field of anesthesiology after their APEP experience. Surveys were returned to the APEP faculty director who reviewed the students' comments. After surveys were collected, an e-mail was sent to the APEP students requesting if their de-identified comments could be used for study purposes. All of the students agreed to allow inclusion of their comments. All unedited and open-ended survey responses were reviewed and categorized by two coders. Because of the descriptive/evaluative nature of this study, the institutional review board granted an exemption for approval.

Follow up data was collected regarding individual student's eventual career choice by documenting which field of medicine they matched into during their subsequent MS4 year of medical school. National Residency Match Program (NRMP) data was also reviewed to compare the national trend with our own medical school match data. Students unpaired t-test was used to determine statistical significance between the two groups, pre and post APEP.

Results

Of the 123 MS1/MS2s who participated in APEP from 2006-2010 (Table 1), 77 of them returned the survey for a 63% response rate. Of those respondents, 54/77 (70%) were MORE interested in anesthesiology as a career choice, and of those students who were MORE interested, 23 (43%) actually applied to/matched into anesthesiology (Figure 1).

Unedited, open-ended responses from APEP students (2006-2010) to the final survey question “Are you more or less interested in the field of anesthesiology after your APEP experience?” are found in Appendix C. Representative comments excerpted from open-ended responses by those students who were MORE interested are included below with author’s notation *in italics* regarding student’s eventual career choice:

“Yes. While I am still unsure exactly what I am looking for in medicine, I think anesthesiology is a very interesting field and I was happy to learn that my biggest misconception that anesthesiologists have very little patient interaction was incorrect.” (*Did NOT choose anesthesiology.*)

“Absolutely! I really truly think it is because I admire Dr. (preceptor). I also really like it because I recognized throughout my experience that you have to develop trust in your patients in a matter of seconds and I really like that about anesthesia.” (*DID choose anesthesiology.*)

“...I came back for a second year, not only because I still enjoyed anesthesia, but also because I thought that it was a truly enriching experience that added to my medical education. For me, it was so helpful during second year especially because of the application of pharmacology. In the end, I came away from my APEP experience thinking that I really like the field of anesthesia, and I think I would enjoy it as a career.” (*DID choose anesthesiology.*)

“Before APEP, I had never even considered the field of anesthesiology. While I currently feel that I may want to be more hands on surgically, after APEP-anesthesiology is definitely on my radar.”...”Anesthesiologists seem to be very happy people because they are passionate about their work and are able to truly help patients..” (*Did NOT choose anesthesiology.*)

“Yes, with more exposure I found anesthesia more interesting”. (*DID choose anesthesiology.*)

Of the 77 APEP students who returned the survey, 11 (14%) of them were LESS interested and 10/77 (13%) were NEITHER more nor less interested in anesthesiology as a career choice. Interestingly, two of the students that were LESS interested actually matched into anesthesiology. Representative excerpted comments from open ended responses by those students that were LESS interested are included below with author’s notation *in italics* regarding student’s eventual career choice:

“No, I do not think that I have an interest in anesthesia, but I did find it worthwhile to have so much time devoted to learning about the field, and I definitely have come away with a greater appreciation for what goes on throughout a surgery.” (*Did NOT choose anesthesiology.*)

“I’m less interested in the field now. I really enjoyed the experience, but found the working environment (OR) not conducive to my ideal environment. I found

the educational experience valuable because of the emphasis on physiology and pharmacology, but the field itself did not hold my attention.” (*DID choose anesthesiology.*)

“I think the field of anesthesiology is fascinating, and I am very glad to have had this experience to learn more about it, but I am still more interested in surgery. Knowing what is going on at the other side of the curtain is going to really help me in my career, and I think because of the experience I can see myself being interested in doing some clinical research involving anesthesia topics as well.” (*Did NOT choose anesthesiology.*)

Further data beyond survey responses were collected regarding APEP involvement with students who went on to match into anesthesiology. Match information from 2008-2012 was reviewed for former APEP students, and a career choice in anesthesiology was indicated by a match into an anesthesiology residency program as an MS4. In those four years of data collection, of the 45 Loyola Stritch School of Medicine students who matched into anesthesiology, 28 (62%) of them were involved with APEP as MS1 and MS2s. Interestingly, 12 (43%) of them matched into our own anesthesiology residency program.

Match results for Stritch School of Medicine during years when APEP was not offered were reviewed for statistical comparison. For the five years leading up to APEP (2003-2008), before the MS4s had any exposure to APEP as MS1/2s, there was an average of 5.3% of the graduating class matching into anesthesiology. After APEP was initiated, and the APEP students became MS4s (starting in 2009), an average of 8.3% of those graduating classes matched into anesthesiology, an increase of 57%. Using the unpaired student t test, there was a statistically significant increase in anesthesia matches after APEP ($p=.03$).

National Residency Match Program (NRMP) data showed that from 2003-2008, total applicants matching into anesthesiology (PGY1) averaged 2.6% of American medical graduates, and from 2008-2012 it averaged 3.6%, an increase of 39%.⁹ Comparing the national data with the institutional data for Loyola, there was already statistical significance between the greater percentage of students matching into anesthesia at our institution even before APEP started. ($p=.01$) After the initiation of APEP, the statistical significance continued and there were greater percentages of students matching into anesthesia from Loyola compared with the nation. ($p=.01$) The 57% increase after APEP for Loyola students is 18 percentage points greater than the upward trending national average (Figure 2).

Discussion

APEP is a voluntary program offered to MS1/MS2s that uses an integrated curriculum to provide early clinical exposure to anesthesiology. Qualitative and quantitative data from post-program surveys show that a majority of students who participated in APEP were

MORE interested in anesthesiology as a career choice and almost half of them matched into anesthesiology. Further evidence from data gathered longitudinally shows that more than half of the students who matched into anesthesiology also participated in APEP. The results of this study have reinforced the general perception that APEP is a popular program among students and that APEP involvement contributes to students choosing a career in anesthesiology.

Literature supports the fact that students deem early clinical exposure in primary care fields as valuable. These “clinical preceptorships” can lead to favorable educational outcomes, but there is a paucity of evidence that describes educational or other outcomes for early anesthesiology experiences.^{5,6} A 2010 study supported the role of a cardiothoracic simulation experience for MS1/MS2s as a factor contributing to increasing interest in pursuing a cardiothoracic surgery career, although those students’ long term career choices have not yet been verified.⁷ Another study by Berman et. al showed that MS3s were more likely to express an interest in a surgical career if they experienced hands-on experience in the operating rooms during their clerkship, but it was unclear if they actually went on to match into surgery.⁸ This is the first study we are aware of that looked at MS1/MS2 involvement in an anesthesiology preceptorship program that tracked actual “recruitment” into anesthesiology.

It may be difficult to define exactly what factors attract a medical student into a particular field, but some factors deserve mention. The above-referenced study describes strong mentorship and positive role models during a surgical clerkship (in addition to the OR experience) contributing to an increased interest in a surgical career. Hands on experiences that are often reserved for MS3/MS4 clerkships definitely can spark excitement for MS1/MS2s who are often focused on basic science course work. Simulation experiences can provide an element of the hands on experience that junior medical students enjoy, but it can be difficult to tease out the most enjoyable component of a solid simulation program from a student perspective. In fact, Berman’s study showed that operative simulation exercises alone did not correlate with increased student interest in surgery, supporting the possibility it may be the simulation program’s good leadership, mentorship and role modeling that creates the attraction. APEP’s experiential learning in an intraoperative setting coupled with the consistent mentorship of a dedicated preceptor is likely the reason for the popularity of our program. A majority (21/28) of faculty preceptors have seen one or two of their APEP students go on to choose anesthesiology from 2006-2010. Interestingly, six of those faculty preceptors have seen at least three students enter into anesthesiology and half (3/6) of those preceptors have coincidentally been awarded the “Best Teacher Award” as chosen by the graduating anesthesia residents. Also supporting this observation that role modeling, mentorship and teaching may play a role are the many comments made by students, some describing their preceptors as wonderful teachers and true mentors

Although a conclusion can be drawn that APEP is a factor in attracting medical students to the field of anesthesiology, it is unknown how much of a role that the actual invitation process for APEP pre-selects those already-interested students. It would be logistically impossible to offer APEP to every MS1/MS2, necessitating a pre-selection process. Even

though it is likely that many of the APEP students have a self-selection bias toward anesthesiology before beginning the program, several of them are more interested in surgery or a surgical subspecialty. Currently there is no early clinical exposure for surgery at our institution and APEP provides that glimpse into the operating rooms. Indeed, based on survey comments, several students were more interested in surgery but because of the APEP experience, decided that anesthesiology was a better career fit. Some of those students attributed the excitement of the operating room and exposure to the “other side of the O.R.” as the reason for seriously considering anesthesiology.

Similar to our study, Elnicki, et al. showed a positive correlation with a volunteer summer preceptorship experience for MS1s and their choice of internal medicine as a career.⁶ They added that although a self-selection bias may be likely, “the task for internal medicine recruitment is to maintain interest in those who have it, rather than to create it in those not interested”. Agreeing with the first half of the above comment, we would add that we hoped APEP would not turn the majority of students away from a career in anesthesiology. After removing those students who responded that they were LESS interested in anesthesiology as a career choice but chose it anyway after APEP, 9/77 (12%) were less interested in a career in anesthesiology. Even though this minority may represent those students who were interested in a surgical career all along, we feel that an early decision against any specialty can still be beneficial to a medical student. In addition, in contrast to the second half of the above quoted comment, we might add that the task for APEP is also to create an interest in those who might not know exactly what an anesthesiologist does. Anesthesiology is a field with less exposure from a student’s perspective than a field in primary care, simply because most students have had a primary caregiver and see first hand what that practice entails from a patient perspective. We were pleased that only a very small minority (12%) of students were neither MORE or LESS interested in anesthesiology after APEP, as one goal of APEP is to assist students in career choice by early clinical exposure.

Student interest in anesthesiology (as demonstrated by anesthesiology matches at our institution

Compared with national data) has been above the national average for the past several years. (Figure 2) This may be due, in part, to a robust Anesthesia Interest Group (AIG) which consistently meets 3-4 times per year. However, these AIG events do not include any clinical exposure for the mostly MS3s/MS4s in attendance and cannot fully explain the significant rise after APEP. The 57% increase in anesthesia matches after APEP needs to be compared to the well recognized national increase in students matching into anesthesiology during the same time frame. APEP was the only organized departmental program initiated during this time period for students and survey data reinforces APEP’s impact on attraction into anesthesiology.

Although faculty opportunities for mentoring and increased interest in our field are commendable reasons to continue offering APEP, recruitment into our own program is another positive endpoint. An informal, anonymous survey of the former APEP students who became anesthesiology residents in our own program, discovered that 8/8 (100%) of them “agreed” or “strongly agreed” that APEP played a role in their decision to rank the Loyola Anesthesiology Residency Program or apply to our program outside the match.

In conclusion, APEP is a simple, inexpensive preceptorship program that can be easily duplicated in other programs at other institutions to attract students into anesthesiology.

Acknowledgements, Disclaimers: The authors would like to thank Maryann LaBine for her assistance with manuscript preparation.

References

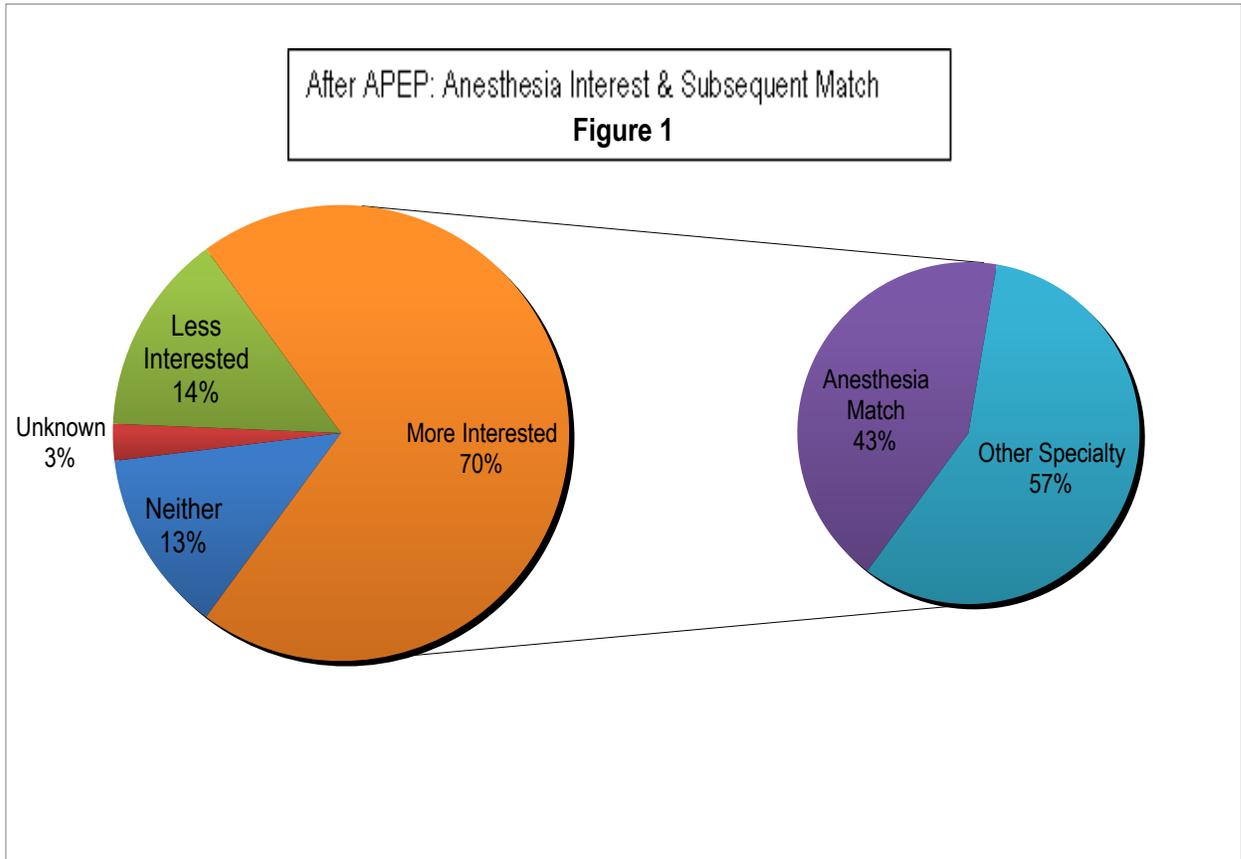
1. O'Brien-Gonzales A, Blavo C, Barley G. What did we learn about early clinical experience? *Acad Med* 2001;76(4):S49-S54.
2. Association of American Medical Colleges, Educating Doctors to Provide High Quality Medical Care. A Vision for Medical Education in the United States. Report of the Ad Hoc Committee of Deans. Available at (<http://www.aamc.org/meded/iime>). Accessed June 14, 2007.
3. A Snapshot of Medical Students' Education at the Beginning of the 21st Century; Reports from 130 Schools. *Acad Med* 2000; 75:S15
4. Murray A, MD, Kileny J, Levan P. APEP - Anesthesiology Preceptorship Enrichment Program: A curriculum for first and second year medical students...an early look. *JEPM* 2009; 11(1):1-11.
5. Rook L, Watson RT, Harris JO. A primary preceptorship for first-year medical students coordinated by an area health education center program: a six year review. *Acad Med* 2001;76:489-492.
6. Elnicki DM, Hallbritter KA, Antonelli MA, Linger B. Educational and career outcomes of an internal medicine preceptorship for first year medical students. *J Gen Intern Med* 1999;14:341-346.
7. Tesche LJ, Feins RH, Dedmin MM. Simulation Experience Enhances Medical Students' Interest in Cardiothoracic Surgery. *Ann Thorac Surg* 2010; 90:1967-74.
8. Berman L, Rosenthal MS, Curry LA, Evans LV. Attracting Surgical Clerks to Surgical Careers: Role Models, Mentoring, and Engagement in the Operating Room. *J Am Coll Surg* 2008; 08:793-800.
9. National Resident Matching Program: Results and Data Main Residency Match 1998-2012 available at (<http://www.nrmp.org/data/results and data 1998-2012.pdf>). Accessed Jan 12, 2013.

Table 1: Student Demographics for Loyola Stritch School of Medicine and APEP

<u>APEP Year</u>	<u>Student/Preceptor Information</u>	<u>Ratio of MS2s returning from previous year</u>	<u>APEP Students Matching into Anes/ all Loyola students Matching into Anes</u>
2006-2007	37 students (25 active) 57% female, 43% male 18 faculty preceptors	n/a	n/a
2007-2008	47 students (26 active) 47% female, 53% male 25 faculty preceptors	13/19 (68%)	n/a
2008-2009	51 students (39 active) 45% female, 55% male 26 faculty preceptors	13/25 (52%)	1/13 (8%) <i>(the first year that grads had APEP exposure)</i>
2009-2010	40 students (33 active) 53% female, 47% male 30 faculty preceptors	12/24 (50%)	6/10 (60%)
2010-2011	65 students (34 active) 42% female, 58% male 31 faculty preceptors	9/25 (36%)	12/13 (92%)
2011-2012	46 students (34 active) 67% female, 33% male 33 faculty preceptors	13/27 (48%)	9/11 (82%)

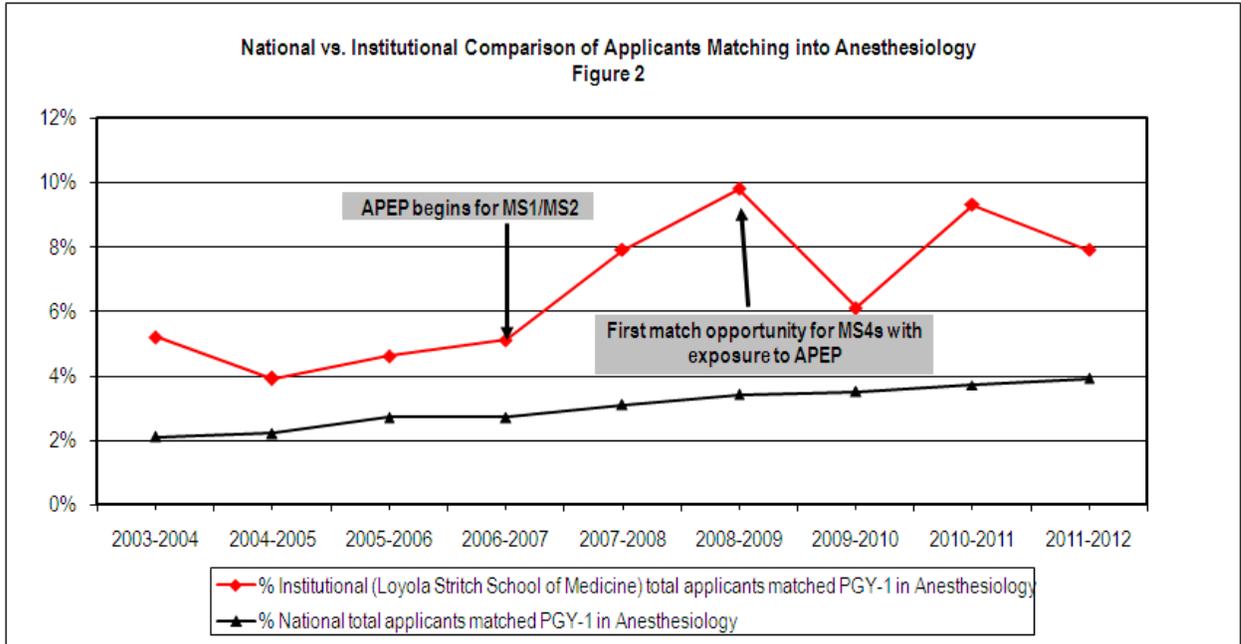
Legend for Table 1:

Table 1. A breakdown of the participating APEP students and faculty during the time of the study and beyond. “Active” student is defined as one who met with their preceptor in the operating room more than twice over the 7 month program. Last column highlights the increasing number of students matching into Anesthesiology who were exposed to APEP.



Legend for Figure 1:

Figure 1. A breakdown of the survey respondents who participated in APEP. Of the 77 students who responded, 54 (70%) were more interested in anesthesiology after APEP. Of those 54, 23 (43%) students applied/matched into anesthesiology.



Legend for Figure 2:

Figure 2. Plot of percentage of medical students matching into anesthesiology over 2003-2012. Institutional and national data compared, and onset of APEP indicated for institution.

Appendix A

APEP handouts

Actual APEP handouts contain diagrams, outlines and text taken directly from students' basic science lectures and notes. Due to the nature of this content, including copyright and authorship concerns, sample APEP handouts cannot be provided. Dated outlines and basic topics can be provided and are presented below. The APEP handout content corresponded to basic science course content during most months.

MS1:

OCTOBER: Vertebral column anatomy, spinal cord anatomy, dermatome chart, practical aspects as pertinent anatomy relates to neuraxial anesthesia, difference between spinal and epidural anesthesia

NOVEMBER and DECEMBER: Airway anatomy including cricoid/arytenoid/corniculate/cuneiform/epiglottic cartilages, clinical skills include direct laryngoscopy, intubation, Glidescope/fiberoptic view of relevant airway structures

JANUARY: Phases of the cardiac cycle, review of Wigger's diagram, arterial line/CVP/PAP waveform, basic EKG, calculation of/factors affecting/and measurement of mean arterial blood pressure

FEBRUARY: Oxygen/hemoglobin dissociation curve and factors affecting oxygen binding, pulse oximetry, carbon monoxide and capnography, lung volumes and capacities, mechanical ventilation

MARCH: Pulmonary ventilation/perfusion mismatch, hypoxemia, hypoventilation, intraoperative evaluation

APRIL: Review any of the above topics

MS2:

OCTOBER: Review of pharmacology: Anesthetics (inhaled, intravenous, local) and neuromuscular blockers

NOVEMBER: Cardiac conduction abnormalities, EKG tracings, lead placement

DECEMBER: Oxygen/hemoglobin dissociation curve and shifts in curve, hemoglobin, capnography, pathophysiologic pulmonary conditions, lung volumes, mechanical ventilation

JANUARY: Pharmacology of antihypertensives, clinical hypertension, cardiac murmurs, perioperative management and evaluation of hypertension and cardiac murmurs

FEBRUARY: Sympathetic nervous system, sympathomimetics, cholinomimetics, muscle relaxation

MARCH: Benzodiazepines and other anxiolytics, sedatives, barbiturates

APRIL: Review any of the above topics

Appendix B

APEP survey to students

Name _____ APEP Preceptor _____

- 1) Did you find your APEP preceptor available / approachable?

- 2) Was APEP more than just a shadowing experience? (Did you go over the handouts or learn anything for Step 1 or physiology, etc.?)

- 3) Were the handouts useful for anything other than APEP? (study tool?)

- 4) Did you meet with your APEP preceptor (even if it was simply attending a lecture that you were invited to) as often as was expected? (1-2 x per month) If not, why not?

- 5) What was the best thing you got out of APEP?

- 6) Are you more interested in the field of anesthesiology after your APEP experience? Why or why not? (You will not hurt my feelings if the answer is no...please be honest.)

Appendix C

The following responses from students that were MORE INTERESTED in Anesthesiology after APEP and DID go into anesthesiology:

- Yes I am. I have always loved the excitement in the OR and I used to have no doubts about going into surgery. Now that I have been exposed to the other side of the OR, anesthesia is now a serious consideration of mine. Most importantly, however, is the fact that I met wonderful people in the field and enjoyed myself while shadowing my mentor!"
- "It was a wonderful experience. I had more interaction with physicians and residents, saw a birth, got to be in the operating room, and got a taste of what it is like to be an anesthesiologist."
- "I was already fairly interested in the field and being in the OR got me more excited about it."
- "Yes, I think I have a more accurate picture of how an anesthesiologist spends their day."
- "I am actually very interested in the field of anesthesiology now. I would like to continue to shadow in APEP, hopefully still following Dr. (preceptor), next year as well in addition to having a more active role in the group."
- "Yes, I am extremely interested. I came in initially wanting to do surgery and never thought I would be interested in anesthesiology, but I realized that what I really like is just being in the OR. I am also a firm believer in liking a field if you like the people in it. With that said, working with Dr. (preceptor), I have met some wonderful people with whom I could see myself working with and learning from in the future."
- "Anesthesia was always something I was interested in. APEP definitely helped me see anesthesia in a different light (because you don't get much exposure to the field in college/the first 2 preclinical years at med school.) I saw how the anesthesia approached the problem together, and I really enjoyed that approach. Having M1s interact with residents more might help to answer questions about residency, research, etc..."
- "APEP greatly improved my interest in anesthesia. Thank you!"
- "Yes, with more exposure, I found anesthesia more interesting."
- "Yes, I was always interested in GAS, but APEP has focused my interest and made it my first choice (so far)."
- "Yes, I want to be an anesthesiologist and APEP affirmed that."
- "Absolutely! I really think it is because of Dr. (preceptor). I also really like it because I recognized throughout my experience that you have to develop trust in your patients in a matter of seconds and I really like that about anesthesia."
- "I came into APEP as a first-year student thinking that I might want to go into anesthesia. I thought that it would give me an experience to explore the field more and gain insight into what the day-to-day work entails. I came back for a second year, not only because I still enjoyed anesthesia, but also because I thought that it was a truly enriching experience that added to my medical education. For me, it was so helpful during second year especially because of the application of pharmacology. In the end, I came away from my APEP experience thinking that I really like the field of anesthesia, and I think that I would enjoy anesthesia as a career."
- "Yes, I am more interested now simply because I know more about anesthesia now. Anesthesia is my top choice at the moment, and I know I have to do a rotation third year to learn more!"
- "I am still very interested in anesthesiology. I'm also excited about my third year so I can try my hand at the main fields of medicine and surgery and see what fits for me."
- "After my experience with APEP, I am definitely more interested in anesthesiology. I think that the incorporation of procedures, pharmacology, physiology, anatomy, etc., is fascinating and would be a very interesting, challenging and rewarding field of medicine to work in everyday."
- "Overall, I do find myself far more interested in the field of anesthesiology after APEP. My uncle is an anesthesiologist, and many years ago I attended a national conference with him. I have always been intrigued by anesthesiology, but aside from that limited experience, I did not have much knowledge of just what exactly was entailed in the specialty. Furthermore, I had talked to upperclassmen who are interested in anesthesiology, and they said they really didn't get directly exposed to the specialty unless they took it as an elective their fourth year. For this reason, I am really glad I got this early exposure to the field, and definitely plan to do APEP again next year as well as pursue anesthesiology as a potential specialty in the coming years."
- "Yes, I am interested in anesthesiology after APEP!! As I have shared above, APEP was the venue that I am thankful for having at Stritch. It has exposed me to something that I may not have known about until it was too late in my training. I now have a whole new understanding of anesthesia and how I see myself in this specialty of medicine."
- I am definitely more excited about it. There is so much that one can do in this field, and I'm certain that I want to pursue it. Looking forward to doing it again next year!"
- "I am interested. It is still an option in my mind but I would like to see the more clinical aspect of it."

Appendix C (Continued)

The following responses from students that were MORE INTERESTED in Anesthesiology after APEP but DID NOT go into anesthesiology:

- "Yes, I am more interested in anesthesiology after having participated in APEP. I initially thought anesthesiology was interesting, but I also just wanted to spend more time in the O.R. and watch surgeries. Now I'm actually considering anesthesiology as a specialty. We'll see!!"
- "It did peak my interest. I like the nice mix of procedures and medical care involved in taking care of the patient, which kept the day interesting."
- "I am definitely more interested in anesthesiology now because I know more about the field. I think it might be a very good fit for me."
- "Yes, I saw how broad the field is, because in a hospital the anesthesiologist can be called to be at any type of surgery, and through that one can learn about many more things than only putting someone 'out'. It was interesting to see all of the things my mentor did."
- "Probably more interested in anesthesiology. My preceptor's reasons for choosing anesthesiology were very convincing. However, I am not sure that I want to be in the OR quite so much so I am still very up in the air about what I want to do."
- "I am still interested because I feel that more time in the program is required to gauge my true level of interest. I am looking forward to this year and learning more about anesthesiology."
- "I am interested in anesthesia. I am definitely considering other things, but I really appreciate my exposure to anesthesia to help me make a decision when the time comes."
- "My interest has increased slightly. I feel like I still need to see a lot more before I could decide. It's definitely a field that I am interested in, but I would need to do some more rotations in general to see where my overall interest lies."
- "Certainly more so than when I started. It necessarily lacks a certain degree of patient contact, but as far as logic and reason can be applied to the therapeutic manipulation of the human body, no specialty (in my experience) can come close to anesthesiology, and I find that intriguing."
- "I never thought I'd be interested in anesthesiology-and now I definitely am. It has been great to get to spend time learning about anesthesiology first hand. What makes anesthesiology appealing to me is getting to use physiologic principles and also being able to use drugs that have almost immediate effects. It is very gratifying to see how people are put under anesthesia and how their pain is managed so they can undergo major procedures."
- "At first I was not very interested, but I am definitely considering it more after completing my first year in the program. Before this I never knew how integral a part of the OR team an anesthesiologist was. I now know that they not only sedate the patient and wake them up, but they have to, for all practical purposes, live for the patient and make sure the patient is safe during the procedure. I like the feeling of being the guardian of the patient and am more interested every time I participate."
- "Possibly, need to keep looking at more fields. All the anesthesia physicians I've met are great!"
- "Yes, I enjoy the aspect of being the patient advocate in the OR and the ability to see relative immediate effects of administered therapy."
- "Yes, it showed me the wide range of anesthesiologists' activities. I'm eager to learn more next year."
- "I am interested in anesthesiology. I like the operating room. I enjoy the physiology and pharmacology involved. I like the idea of having clearly defined, finite ways to aid patients."
- "To be honest, I really wasn't sure about Anesthesia, but after this experience, I definitely want to learn more about it to see if I would be able to do it for a living. I'm very interested now."
- "Yes, I didn't know much about Anesthesiology previously-but now it's a real possibility, thanks to Dr. (preceptor) making it such a nice and educational experience."
- "Yes, I think I have a more accurate picture of how an anesthesiologist spends their day."
- "Yes, I will definitely consider anesthesiology."
- "Yes! I came into medical school knowing that I was interested in this field, and my interest has grown through APEP. I really enjoy physiology, pharmacology and pathology and I feel like anesthesia requires a good understanding/use of all these fields."
- "Yes. Provides the most bedside and procedural care of critically ill patients."
- "Yes, I got the perspective of a young(er), fresh anesthesiologist that made me think that anesthesia, as a career, is certainly a viable option for me. Prior to that, it was much more of an 'unsubstantiated idea'. But now I have some solid feelings to back up my interest in the field."
- "Yes. While I am still unsure exactly what I am looking for in medicine, I think anesthesiology is a very interesting field and I was happy to learn that my biggest misconception that anesthesiologists have very little patient interaction was incorrect."
- "Yes, I like the setting of surgery and the OR, and the medicine of anesthesiology. I find it interesting when the physicians are figuring out what combination of medications to give a patient; it's like a puzzle."
- "Dr. (preceptor) definitely made me more interested in anesthesiology. She is a caring and compassionate physician and in her interactions with patients, she is truly concerned with more than just their anesthesia. Anesthesia is an always evolving, exciting field that involves many different aspects of pharmacology, physiology, and pathology. One of the best areas of anesthesia, particularly highlighted by this program, is the constant intellectual challenge presented by each individual case, and having a solid knowledge of the basic sciences to adapt to any changes on a moments notice. With that said, I am still unsure about whether anesthesia is the right fit for me. This year has introduced me to a lot of new pathology and has peaked some new interests for me. Also, because one of my favorite parts of each case was interacting with the family and patients before and after the case, I wonder if that's something I'd like to make a bigger part of my practice."
- "Before APEP, I had never even considered the filled of anesthesiology. While I currently feel that I may want to be more hands on surgically, after APEP-anesthesiology is definitely on my radar. I tried to put myself in the shoes of those I encountered- especially the residents and attending physicians. Anesthesiologists seem to be very happy people because they are passionate about their work and are able to truly help patients. APEP has been an excellent learning experience for me and I am happy that I participated."

Appendix C (Continued)

- "I am definitely keeping anesthesiology as a possible field for me. I really liked the fact that Dr. (preceptor) got to do so many procedures and really had an active role in helping the patient feel better. I also liked the constant problem solving involved and the topics really fascinated me. The one drawback I did see was not being able to form relationships with patients since you usually only see them for the day of the procedure and then possible follow ups with pain management. I feel like I still need to explore some other fields but I am so thankful I had this opportunity to learn more about anesthesiology. In talking with my third year mentor, she expressed how great it was since there aren't many times to explore the field later on."
- Yes, I think I am definitely more interested in anesthesiology after APEP. I was really amazed at the wide depth of knowledge that an anesthesiologist needs to know and use in order to do his/her job well. I think that really fascinates me and is something I want in my future career. I also really enjoy the operating room and the types of procedures that anesthesiologists do."
- "I did not know very much about anesthesiology before beginning APEP, but I am certainly more interested in the field since participating in the program. APEP exposed me to some of the diverse clinical responsibilities of anesthesiologists, from obstetrics to outpatient anesthesia to pain management and the OR. As I learned more about anatomy and physiology, I realized how unique each procedure was."
- "Yes, as it has opened my horizons to the varied practice that an anesthesiologist can have. I also enjoy the more rapid, acute fixes that were possible through the administration of certain pharmacologic agents and how my current medical knowledge was entirely necessary to understand the application and use of these agents."
- "I would say I am more interested, now that I've seen that anesthesiologists' skill set encompasses a variety of functions, such as pain management, etc. Before APEP, I was only aware of the surgical aspect of the profession."

The following responses from students that were NEITHER MORE NOR LESS INTERESTED in Anesthesiology after APEP and DID go into anesthesiology:

- "I'm not sure really what I'm interested in right now. It looks like either surgery or anesthesia. It's definitely an environment that I would like to explore further."

The following responses from students that were NEITHER MORE NOR LESS INTERESTED in Anesthesiology after APEP but DID NOT go into anesthesiology:

- "I have the same level of interest in Anesthesia as before. I am more interested in emergency medicine or surgery, both of which definitely involve things I learned through APEP. Anesthesia is still a possibility and I hope to get more experience in it, either through an elective my fourth year or through more shadowing."
- "Right now, I'm not sure if I'm more or less interested-I would like to learn more about the challenges anesthesiologists face when things could go wrong and what role they would play in that scenario."
- "Honestly, I am no more or less interested in it now than before my APEP experience. I am really leaving my options open. I have definitely not ruled it out yet and I did very much enjoy my APEP experience. I am glad that I have been exposed to anesthesiology early so that it will remain in the back of my mind as I continue to make decisions."
- "I think it's more interesting...but I'm not necessarily more interested. Still want to do surgery, but learned tons to help me with that too!"
- "Probably about the same. I'm really interested in anesthesiology, and I really know I love the OR, but I'm not sure where my place in it is yet."
- "I don't think APEP increased or decreased my interest in anesthesiology. I have always been very intrigued by this specialty and I am still very much intrigued by it. I sometimes wonder if the type of patient contact they have would bother me (i.e.—don't really get to develop long term relationship with patients). The field also seems to be a very 'pharmacological' type of medicine which might not be for me, but I am unsure now."
- "I was always a little interested in anesthesiology but to be honest I'm about the same. Still don't know if I want to go into it or not. I did really enjoy the program and I'm really happy I participated."
- "Not necessarily more interested, but certainly not less interested. I loved getting a chance to be both in the OR and ICU. I think anesthesia is a fascinating, complex and appealing field. However, I'm only an MS-1 and feel like I may go into a field with more primary care. There's a lot of time though, and I really appreciate the opportunity-and continuing next year."
- "I think anesthesiology is interesting and have enjoyed my APEP experience, but I have decided to pursue psychiatry."
- "I am not more or less interested in anesthesiology-still very interested in the field, but as I said, this was really not the level of exposure that I was hoping to have, so it did not end up being very influential either way. I do plan on doing APEP again for my M2 year."
- "I don't think APEP has influenced me either way in my interest in the field. I feel that in general, I really have no idea what I want to do and this let me see more about the field of anesthesia, but there is still a lot I want to see in other fields as well. It didn't dissuade me from the field though. It just gave me more of a glimpse into it."

Appendix C (Continued)

The following responses from students that were LESS INTERESTED in Anesthesiology after APEP and DID NOT go into anesthesiology:

- "I am less interested in anesthesiology, but not because of any negative experience with APEP. I simply learned more about what being an anesthesiologist entails. I think I would enjoy a situation with more patient contact and collaboration."
- "Honestly, I am less interested in anesthesiology after my APEP experience. The repetitive nature of anesthesia does not provide enough action for me. I was more interested in trauma surgery (on a burn victim) to be performed than the anesthesia aspect of the case when I was in the OR with Dr. (preceptor). I do think this program is a great way for an M1 or M2 to see surgical cases in various different specialties, and that is why I initially did the program and why I would continue to do the program. I hope that does not undermine the mission of the program, but that is the truth."
- "I am interested in anesthesiology, however, having the time in the OR I found myself being drawn more and more toward surgery."
- "I am not sure if I'm interested in anesthesiology. There's quite a huge responsibility on the doctor when you put someone under."
- Not particularly-I never saw anything or talked about anything that excited me or really sparked my interest. I still feel that I do not have a great understanding of what being an anesthesiologist entails on a day-to-day basis-but I will try and understand more throughout the rest of my med-school."
- "No. While I did enjoy the times that I shadowed my preceptor and found it interesting, I realized that anesthesiology isn't the specialty for me. I often found myself more interested in the surgical case than the anesthesia aspect of it. I did learn that there is more to anesthesia than I originally thought, but it wasn't as active of a specialty as I think I want for myself."
- "I think the field of anesthesiology is fascinating, and again I am very glad to have had this experience to learn more about it, but I am still more interested in surgery. Knowing what's going on at the other side of the curtain is going to really help me in my career, and I think because of the experience I can see myself being interested in doing some clinical research involving anesthesia topics as well."
- "No, I do not think that I have an interest in anesthesia, but I did find it worthwhile to have so much time devoted to learning about the field, and I definitely have come away with a greater appreciation for what goes on throughout a surgery."

The following responses from students that were LESS INTERESTED in Anesthesiology after APEP but DID go into anesthesiology:

- I'm less interested in the field now. I really enjoyed the experience, but found the working environment (OR) not conducive to my ideal environment. I found the educational experience valuable because of the emphasis on physiology and pharmacology, but the field itself did not hold my attention."
- "I think one of the reasons APEP took a seat on my backburner once my life got really hectic had a lot to do with my loss of interest in pursuing a career in anesthesiology. As I've gone through the first year of medical school, I've discovered a lot of things about myself and what I think I might like to do someday. APEP was a great learning tool and taught me a lot about what goes on during the day of a life of anesthesiology. I think this program was a wonderful addition to the medical school and should definitely be offered again. A lot of my friends that go to other medical schools do not have opportunities like this so I think it's a real bonus of Loyola."

