Founding a USMLE Step 1 student organization: A new approach to promote student engagement and peer support in exam preparation

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Abstract

The USMLE Step 1 exam is the principal tool that US residency programs utilize to select applicants for interview. Due to the high stakes nature of the exam, both students and educators need to be informed about the most effective preparation tools and support strategies available to students. The literature has evidence to suggest that the number of board-style questions a student completes has a strong correlation with performance on the exam. Based on this premise, a group of medical students developed a USMLE step 1 preparation program to increase the number of practice questions they completed, and to foster support and comradery among students. The main contribution of this educational initiative is its structure as a registered student organization, which may help to promote the program's continuity and constant improvement as the lessons learned pass from one class of student officers to the next. This article may serve as a how-to guide to describe the steps we took to start a Step 1 registered student organization at our institution, and about how the reader may be able to apply our experiences to create their own step 1 student organization at their institution.

Keywords: USMLE Step 1; student--led; preparation program; student organization; practice questions; AOA; peer tutoring; residency; board examination; UAMS.

Introduction

The USMLE Step 1 examination: Background and relevance

The United States Medical Licensing Examination (USMLE) Step 1 is arguably the most important exam a medical student has to go through to become a licensed physician. The exam encompasses foundational science concepts learned throughout the first two years of the medical school curriculum, which culminates in an eight-hour computer-based exam. For most United States (US) residency programs, the Step 1 score is the principal tool they use to select applicants for interview, which they rate as more critical than Grade Point Average (GPA), clerkship...
evaluations, research, awards, and leadership activities. (Bowles et al., 2000; Green, Jones and Thomas, 2009; National Residency Matching Program, 2018) The exam may essentially determine what medical specialties medical students will be able to pursue, and whether or not they will be able to advance through the medical school curriculum. (Association of American Medical Colleges, 2018; Jayakumar, 2016; Mehta, Hull and Young, 2016) Although there has been a push towards reevaluating the importance and value of Step 1, it still seems highly unlikely the significance of the Step 1 examination will be changing anytime soon. (McGaghie, Cohen and Wayne, 2011; Prober et al., 2016; Burk-Rafel, Santen and Purkiss, 2017) Due to the high stakes’ nature of the exam, medical students are very intentional about finding the most effective approach to scoring well.

**USMLE Step 1 exam preparation: Current literature**

A recent statistical analysis demonstrated that the number of practice questions that students did before their examination had the strongest correlation with higher performance on USMLE Step 1 exam scores. (Wilkerson et al., 2007) Examples of teaching methods in the pre-clinical years include lectures, group discussions, practice questions, and interactive team-based learning. These approaches are excellent at covering large amounts of information and preparing medical students for the complex challenges of clinical medicine, but they are not necessarily structured to help students maximize their performance on standardized tests. (Schwartz et al., 2018) In the medical education literature, there are reports of medical student groups that created student-led Step 1 preparation programs. One of those reports involved cohorts of medical students at the University of Michigan Medical School that took Step 1 in 2014 and 2015, which showed that those who participated achieved higher scores, and they attributed their success to the higher number of practice questions they worked on and their increased usage of review books. (Burk-Rafel, Santen and Purkiss, 2017) Another group of medical students at the University of Illinois College of Medicine began a student-led program that provided all students in the class with First Aid review books and USMLE World practice questions bank subscriptions. (Deng, Gluckstein and Larsen, 2015) Their program led to an 8% increase in their Step 1 scores when compared to previous classes of students in their institution. (Deng, Gluckstein and Larsen, 2015)

**Step 1 student organizations: Possible benefits to student members**

Although there are other student-led programs mentioned in the literature, to our knowledge, there are no descriptions of established student organizations dedicated to Step 1 preparation, which may include additional components such as advisors, student officers, scheduled meetings, by-laws or a constitution, and a precise mission that guides the group’s decisions. By having a structured organization with specific assigned officer roles, we believe that one can increase the chance that the program will continue year-by-year as new generations of medical students take on the responsibilities assigned by their officer positions. We also believe that by creating an organization, one can foster deeper connection and support amongst the members, which would be ideal considering the stressful nature of the USMLE Examination.

**Methods**

**Starting our Step 1 Student Organization**

A group of second-year medical students at the University of Arkansas for Medical Sciences (UAMS) developed an exam preparation program named the Step 1 Student Preparation Program (SSPP). This organization had novel structural features not seen in published student-led efforts. To promote the long-term permanence of this program, the students established a structured organization with three faculty advisors, a mentoring partnership with the local Alpha Omega Alpha (AOA) council, and student leadership roles including Director of the Program, Deputy Director, AOA Director of Volunteers, Finance and Fundraising Chair, and the Logistics and Communication Chair. By setting up leadership roles within the organization, they aimed to ensure a successful transition of the program to
future medical school classes that take over those roles. A partnership was established with the local AOA council to ensure that every year, the AOA members who have shown superior performance on their exams would be available to facilitate the sessions.

**Structure of our student organization**

A second-year medical student spearheaded the project by reaching out to his classmates through the class’s Facebook page. He gauged interest in the program by using the Facebook poll feature. Approximately 40% of the class responded with a positive interest in a student-led program. As the interest became apparent, the group of students approached faculty in the College of Medicine (COM) in charge of the academic curriculum who were fully supportive of the initiative and agreed to become permanent faculty advisors of the organizations. The group of students also approached the AOA faculty advisor and the AOA volunteer coordinator who agreed to recruit student volunteers for every weekend session with plans for this to become a long-term service project for their council. Finally, the group of students registered their organization with the UAMS Campus Life and Student Support Services and became a College of Medicine-Sponsored Registered Student Organization.

**Participants and sessions**

Everyone in the UAMS College of Medicine - Class of 2020 was invited to attend the sessions free of charge. Of the 164 students in the class, there were a total of 31 students that participated in at least one of the sessions. The number of participants in each session ranged between 8-12 students. Five students attended all five sessions.

The sessions were four hours each and were held on Saturday mornings for ten consecutive weeks. Students were encouraged to arrive earlier to eat breakfast, which was supplied by the College of Medicine Student Activities Office. The sessions began with an exam composed of forty questions selected from the Kaplan Q-Bank by the Associate Dean. These practice exams were inputted into Blackboard so that every student had access to the same questions, and to track which questions were the most missed. The selected Kaplan questions had mixed subjects and were timed at the same rate of 1.5 minutes per question to replicate both the content and experience of the actual USMLE Step 1 exam. There was a scheduled ten-minute break after the students completed their question blocks.

In the review session, the AOA tutors reviewed the most missed questions in an interactive Q&A format. Students were encouraged to explain the reasoning behind their answers and to inquire about concepts they found particularly challenging. The questions were dissected to their elemental parts to identify the specific buzzwords, patterns, and high yield concepts to help students develop the critical thinking skills necessary to maximize their performance. At the end of the sessions, tutors discussed exam preparation tips such as schedules, strategies, and lifestyle advice.

**Student feedback**

The feedback we gathered was mostly subjective and was not meant to indicate an accurate assessment of the program's ability to enhance performance. The responses were only used to suggest small adjustments to the structure of the sessions. After the first session, students indicated that working on test-taking skills and breaking down questions was helpful to them. In the third session, they emphasized their preference of going over all questions, and not only the top missed questions. Some examples of students’ responses include:

"M4 did an excellent job giving tidbits of information that are helpful for Step."

"I enjoyed being able to go through all of the questions as a group and learning different ways to look at the questions and answer options."

"M4s went over every single of the 40 questions. It was so helpful to know I had covered everything and didn't need to go back and review those questions."
Discussion

The main strength of our educational initiative is its establishment as a registered student organization. The organizational structure instills a sense of responsibility in student officers. It also promotes the program’s continuity and continuous improvement as the lessons learned pass from one class of student officers to the next. Lastly, being a Registered Student Organization (RSO) allows the organization to have access to the resources allocated for student activities.

Participants indicated that the sessions helped them to identify weaknesses, become skilled at analyzing questions, and at increasing the number of practice questions they completed. Although the participants’ feedback was mostly positive, their responses cannot accurately assess the true extent of the sessions' impact on their exam performance. The students’ Step 1 scores may also be attributed to a variety of confounding variables such as the Medical College Admission Test (MCAT) score, independent study time, test anxiety, and the use of various study resources. (Thadani, Swanson and Galbraith, 2000; Basco et al., 2002; Strowd and Lambros, 2010; Bonasso et al., 2015; Kumar et al., 2015)

There are various additions to the program that we would like to implement with the help of future officers. We want to organize fundraising events can be used to raise money for study materials that participants may use free of charge. We would also like to host full-length practice examinations to fully replicate the experience of the actual USMLE Step 1 exam. Lastly, we would like to record and live-stream the sessions to allow those students who prefer to study alone, an opportunity to access the information covered in the sessions.

Based on the feedback we receive, we aim to continue improving the effectiveness of our program because we believe that intangible qualities such as stress reduction, a sense of belonging to a group, and decreased anxiety may be underlying factors that could significantly contribute to a student’s performance in the USMLE Step 1. We hope that by presenting our how-to guide of how we started a Step 1 student organization, other medical schools could also implement a similar program that may be able to support students and their specific needs as they go through the challenging task of preparing for the USMLE Step 1 board examination.

Take Home Messages

1. The USMLE Step 1 is the principal tool that US residency programs use to select applicants for interview.
2. Educators and students must be aware of the most effective preparation tools and support strategies currently available for students.
3. The literature describes student-led programs, but not Step 1 student organizations, which may increase efficiency and the long-term permanence of a group's efforts.
4. Step 1 student organizations may provide intangible benefits such as improved support, comradery, and feelings of belonging.
5. By following similar steps, medical student groups at other institutions can also incorporate their own Step 1 Student Organizations.

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Appendices

None.

Declarations

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