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# Military Medicine Interest Groups in U.S. Medical Schools

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**ABSTRACT** Medical student interest groups are organizations that help expose students to different medical specialties and fields of medicine while in medical school. Military medicine interest groups (MMIGs) are a particular type of interest group that spreads information about military medicine, fosters mentorship, and camaraderie between students and military faculty, and increases the opportunities for leadership while in medical school. Surveys were sent to all U.S. medical schools to determine how many schools had an MMIG. If a medical school had a group, a second survey was sent to the student leader to determine more information about how their group operated (such as type of participants, funding sources, activities, faculty involvement, military health care provider involvement, etc.). Fifty-six percent of U.S. medical schools who responded were found to have an MMIG and most participants were students in the Health Professions Scholarship Program. Information about military medicine was found to be the biggest impact of having a group at a medical school and student leaders expressed they wished to have more military health care provider involvement. The results of this study could help start MMIGs at other medical schools, as well as give ideas to current MMIGs on how other groups operate.

## INTRODUCTION

Student interest groups (SIGs) are organizations within medical schools that expose medical students to different fields of medicine and medical specialties.<sup>1</sup> Generally open to students in all 4 years of medical school, SIGs not only help foster interest in particular fields of medicine but also connect students with faculty/members of a medical specialty.<sup>2</sup> Participation in SIGs during the preclinical years may be the only exposure that students have to certain medical specialties before their clinical years start.<sup>3</sup> SIGs exist in most traditional specialties such as family medicine, surgery, and pediatrics, as well as other fields such as rural medicine, underserved medicine, global health, and wilderness medicine. Typically, all SIGs are elective and the number and types of these groups in each U.S. medical school are variable.<sup>4</sup>

Military medicine interest groups (MMIGs) are a specific type of SIG that target students in the Health Professions Scholarship Program (HPSP), the National Guard/Reserves, or students wishing to practice medicine in any uniformed service. The HPSP is a program in which qualified students receive tuition assistance along with a stipend while attending a civilian medical school, in exchange for a time commitment to the Army, Navy, or Air Force. Although MMIGs at different medical schools will differ in some regard, all

groups likely will share an overall goal of increasing interest in the field of military medicine. The mission statement for the MMIG at the Indiana University School of Medicine serves as an example of how one MMIG hopes to increase interest in military medicine at their medical school: “The goals of the Military Medicine SIG [student interest group] are to develop lines of communication within the military medical student community across the U.S., serve as an information source for military medical students, and others with an interest in military medicine, and develop pride, teamwork, and esprit de corps among military medical students.”<sup>5</sup>

SIGs in Psychiatry, Family Medicine,<sup>6</sup> Internal Medicine,<sup>7</sup> Radiology,<sup>8</sup> and Emergency Medicine<sup>9</sup> have been studied at a national level, looking at various end points such as prevalence, funding sources, group activities, and impact on residency selection. Nevertheless, no study has ever examined MMIGs at a local or national level in the United States. The objective of this study was to determine how prevalent MMIGs are in U.S. medical schools and to find out more information about the groups that are present. This information may help medical students, residents, and physicians in the establishment of new MMIGs by giving ideas of how other groups operate. In addition, it would allow established groups to become aware of how other groups function to potentially improve their own experience. Finally, the military medical service components could use this information to develop programs to better mentor and develop future military physicians.

## METHODS

This study was approved by the Institutional Review Board at the University of Nebraska Medical Center (Protocol 184-14-EX). A list of U.S. allopathic and osteopathic medical schools was obtained from the Association of American Medical Colleges and the American Association of Colleges

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of Osteopathic Medicine’s website, including Puerto Rican medical schools. Surveys were then sent via postal mail to the Office of Student Affairs or Student Involvement of all 141 U.S. allopathic medical schools and all 36 U.S. osteopathic medical schools. Addresses were obtained from each school’s respective website. Respondents of this primary survey disclosed whether an MMIG was present at that medical school and, if so, the contact information of the student leader of the group was also to be included. A follow-up survey was sent if a response was not obtained after 4 weeks. A final follow-up survey was sent if a response was still not received after an additional 4 weeks.

Once a list of medical schools with an MMIG was obtained, a secondary survey was sent to the student leader to obtain more information about the MMIG at that school, by either postal mail or e-mail. This 17-question survey explored more specifics about a school’s MMIG such as number/types of participants, activities, funding, leadership positions available, and faculty involvement, etc. A follow-up survey was sent if a response was not obtained after 4 weeks. A final follow-up survey was sent if a response was still not received after 4 additional weeks.

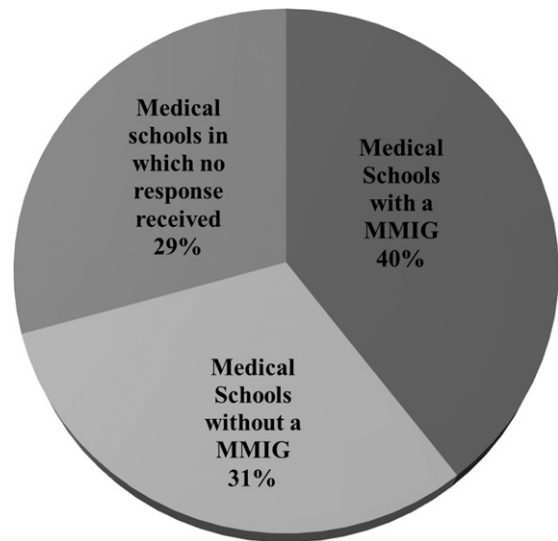
Data from both surveys were compiled in Microsoft Excel, and relevant data were analyzed with either an unpaired test or  $\chi^2$  test to determine significance ( $p$  value < 0.05 was determined to be significant). All surveys for this study were sent and responses received during the 2014–2015 academic calendar year (September 2014–May 2015).

**RESULTS**

In the first phase of the study in which primary surveys were sent to all U.S. medical schools, 125 separate surveys were returned (125/177, or a 70.6% response rate). Of the 125 primary surveys received, 99 were from allopathic medical schools and 26 from osteopathic medical schools. The response rates from allopathic and osteopathic schools were 70.2% and 72.2%, respectively. Of all medical schools that responded to the primary survey, 70/125 or 56% had an MMIG or related organization (Fig. 1). Further breakdown showed 45/99 or 45.5% of allopathic schools and 25/26 or 96.2% of osteopathic schools had an MMIG.

In the second phase of the study, 70 secondary surveys were sent to the student leaders of the medical schools that had an MMIG, asking for more specifics about how their groups operated. Of the 70 surveys that were sent, 47 were returned (67.1% response rate). Further breakdown of those who responded to the secondary survey showed 28/47 or 59.6% attended an allopathic medical school and 19/47 or 40.4% attended an osteopathic medical school. Table I displays the results of the majority of the questions asked in this secondary survey.

The majority of student participants in MMIGs were HPSP students (81.1%). Although all groups had medical student participation, some groups also had physician assistant students, pharmacy students, and nursing students. A



**FIGURE 1.** Military Medicine Interest Groups in U.S. medical schools.

meeting every two months was the most common meeting frequency and activities performed during meetings were quite variable. The average yearly budget of groups surveyed was \$484.23 (standard deviation [SD] \$564.45) and values ranged from \$0 to \$2,307.80. Funding sources were also quite variable, but the majority of schools (55.3%) received some sort of funding in the form of a grant from their school. No funding source was present in 12.8% of groups. Each MMIG averaged 3.9 different leadership positions per group, and most groups used elections to place students in these leadership positions. Although 25.5% of groups participated at a national level and 21.3% with other medical schools, the majority of groups (55.3%) did not participate either at a national level or with other medical schools. All schools that admitted to participating at the national level were osteopathic medical schools, and were involved with the Association of Military Osteopathic Physicians and Surgeons.

On a scale of 1 to 10, with 1 corresponding to no involvement and 10 corresponding to very high involvement, the average level of faculty involvement (as perceived by the student leaders) was 5.6 (range 1–10, SD 3.21). The average level of mentorship between third/fourth year medical students (M3/M4) and first/second year medical students (M1/M2) was 6.6, with 1 corresponding to no mentorship and 10 corresponding to a high-level of mentorship (range 1–10, SD 2.6). There was a significant difference between the perceived current level of participation of Active Duty, National Guard, and Reserve military health care providers in MMIGs (3.8) and the desire for their participation (8.0), according to the student leaders of MMIGs surveyed ( $p$  < 0.0001) (Fig. 2). Finally, the most common response for the most important factor for having an MMIG at a medical school was information about military medicine (66.0%) (Fig. 3).

**TABLE I.** Results of Secondary Survey to Student Leaders

Question	Response	Percent/Mean of MMIG Surveyed (n = Number of MMIGs Out of 47 Who Responded)
1. What year was the military medicine interest group (MMIG) at your school founded?	Before 2000	2.1% (n = 1)
	2000–2010	8.5% (n = 4)
	After 2010	29.8% (n = 14)
	Unknown	59.8% (n = 28)
2. How many students in each year of medical school participate in the MMIG?	M1	Mean 6.8 (median 5) (SD 4.8) (range 0–20)
	M2	Mean 6.9 (median 6) (SD 5.1) (range 0–28)
	M3	Mean 5.0 (median 5) (SD 3.8) (range 0–16)
	M4	Mean 4.7 (median 4) (SD 4.3) (range 0–22)
3. How many Health Profession Scholarship Program (HPSP), National Guard/Reserve, and civilian students participate in the MMIG?	HPSP	Mean 18.7 (median 16) (SD 11.0) (range 2–46)
	National Guard/Reserve	Mean 0.8 (median 0) (SD 1.4) (range 0–5)
	Civilian	Mean 3.6 (median 0) (SD 8.6) (range 0–39)
4. How many Army, Navy, and Air Force students participate in the MMIG?	Army	Mean 7.2 (median 5.5) (SD 5.4) (range 0–24)
	Navy	Mean 5.5 (median 5) (SD 3.7) (range 0–15)
	Air Force	Mean 6.8 (median 6) (SD 4.8) (range 0–23)
5. What types of students participate in the MMIG at your school? (Mark all that apply.)	Medical students	100% (n = 47)
	Physician assistant students	4.3% (n = 2)
	Undergraduate students	4.3% (n = 2)
	Nursing students	2.1% (n = 1)
	Pharmacy students	2.1% (n = 1)
	Residents	0% (n = 0)
6. On average, how often does the MMIG meet? (Please select one.)	Weekly	4.3% (n = 2)
	Every 2 weeks	10.6% (n = 5)
	Monthly	25.5% (n = 12)
	Every 2 months	36.2% (n = 17)
	Every 3–4 months	17.0% (n = 8)
	Every semester	6.4% (n = 3)
7. In what activities do members of the MMIG participate? (Mark all that apply.)	Presentations by active military providers	72.3% (n = 34)
	Presentations by older medical students	72.3% (n = 34)
	Presentations by retired military providers	68.1% (n = 32)
	Military-related philanthropy	53.2% (n = 25)
	Structured mentorship	32.0% (n = 15)
	Nonmilitary-related philanthropy	27.7% (n = 13)
	Physical training	27.7% (n = 13)
	Ceremonies	19.1% (n = 9)
	Presentations by civilian providers	14.9% (n = 7)
	Leadership exercises	8.5% (n = 4)
	Base visits	2.1% (n = 1)
	Triage training	2.1% (n = 1)
	8. How is the MMIG funded? (Mark all that apply.)	School grants
Fundraising		31.9% (n = 15)
Dues (average = \$20.30, SD = \$18.20)		23.4% (n = 11)
Student leadership self-pay (without dues)		12.8% (n = 6)
No funding		12.8% (n = 6)
Donations		10.6% (n = 5)
Grants from a national organization		2.1% (n = 1)
9. What is the estimated yearly budget of your school's MMIG?	\$0–249	44.7% (n = 21)
	\$250–499	14.9% (n = 7)
	\$500–1,000	25.5% (n = 12)
	\$1,000+	14.9% (n = 7)
10. Which of the following leadership positions are available in the MMIG? (Mark all that apply.)	President	100% (n = 47)
	Vice president	76.6% (n = 36)
	Secretary	72.3% (n = 34)
	Treasurer	72.3% (n = 34)
	Co-president	19.1% (n = 9)
	Military branch chair for each service	12.8% (n = 6)
	Philanthropy chair	10.6% (n = 5)
	Class liaison (M1/M2 and/or M3/M4)	8.5% (n = 4)
	Social chair	4.3% (n = 2)
	Fundraising chair	2.1% (n = 1)

(continued)

TABLE I. Continued

Question	Response	Percent/Mean of MMIG Surveyed (n = Number of MMIGs Out of 47 Who Responded)
11. What method is used to place students in leadership positions? (Please select one.)	Elections	72.3% (n = 34)
	Volunteer without election	17.0% (n = 8)
	Previous president selection	10.6% (n = 5)
	Faculty adviser selection	0% (n = 0)
12. Does the MMIG at your school participate at a national level in any organization/society AND/OR does your group participate with any other MMIGs at different medical schools? (Mark all that apply.)	Participates at a national level	25.5% (n = 12)
	Participates with other medical schools	21.3% (n = 10)
	Does not participate at a national level or with other medical schools	55.3% (n = 26)

The average number of student participants in MMIGs was 23 per school, ranging from 3 to 52 students (SD 12.2). To evaluate potential relationships with the size of an MMIG, the 47 respondents of the secondary survey were divided into two groups based on number of student participants: a “smaller group” that included MMIGs with less than 23 student participants (which contained 23 schools) and a “larger group” that included MMIGs with greater than or equal to 23 student participants (which contained 24 schools). The most common meeting frequency for smaller groups was every two months, whereas larger groups most commonly met every month. There was a statistically significant association between the size of an MMIG and the presence of physical training as an activity conducted by the group (8.7% in smaller groups and 45.8% in larger groups, *p* value 0.0044). No other associations were noted between the size of an MMIG and other activities performed, sources of funding, student leadership opportunities, participation at a national level, faculty involvement, or current/desired military health care provider involvement. There was a statisti-

cally significant difference, however, in the average yearly budget between smaller groups (\$256.52) and larger groups (\$702.44; *p* value 0.0054).

DISCUSSION

Over half of medical schools in the United States that responded had an MMIG or related organization, which was lower than the prevalence rate of other medical SIGs that have recently been studied. For instance, Rosenthal et al (2004) found that 99% of medical schools had a family medicine interest group, with a response rate of 85%. Although our study failed to capture responses from 52 medical schools, we felt our data were representative and the response rate was similar to that of other published postal mail surveys.<sup>10</sup> Possible mechanisms we propose to increase the number of MMIGs nationally would include (1) medical student initiative, (2) active and/or retired military health care provider initiative, or (3) help from a national organization.

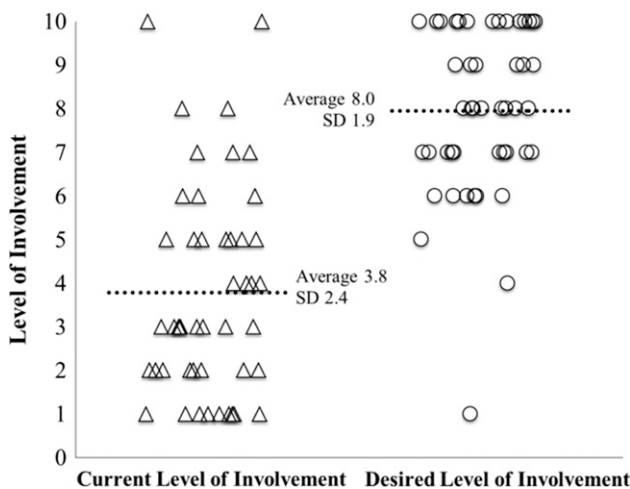


FIGURE 2. Military provider involvement in U.S. Military Medicine Interest Groups. Perceived involvement from student leaders with a score of 1 corresponding to no involvement and a score of 10 corresponding to high level of involvement.

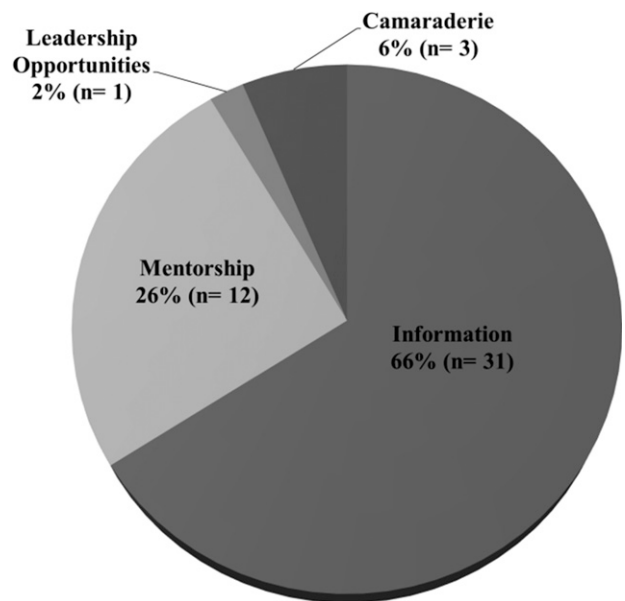


FIGURE 3. Most important factors of Military Medicine Interest Groups in U.S. medical schools.

The Association of Military Osteopathic Physicians and Surgeons hosts student chapters at most osteopathic medical schools, helps create structure for MMIGs, provides some funding, in addition to access to national student meetings.<sup>11</sup> This organization is only available to osteopathic medical schools, and to our knowledge no comparable organization is available to allopathic medical schools, which make up the majority of medical schools in the United States. This may be the reason why the percentage of osteopathic medical schools with an MMIG was higher than that of allopathic schools. Having a supportive national organization (or a student branch of an already existing organization) for allopathic medical schools could help provide potential structure, advice, funding, more leadership opportunities, and access to national meetings that may help to increase the number and quality of MMIGs in the United States. One possible organization that could help fill this void for allopathic medical schools is the Association of Military Surgeons of the United States. Though this organization offers student membership in addition to other resources for medical students interested in military medicine, it could potentially expand its role by providing support/guidance in starting and/or maintaining an MMIG, providing possible grants to unfunded MMIGs, and helping to connect MMIGs across the country.

Although each MMIG we surveyed differed in some aspects, many were found to operate in a similar fashion and partake in comparable activities. We found an association between size of an MMIG and presence of physical activity within the group. Though our data do not establish a causal relationship, it has long been understood that group exercise can improve team dynamics and may lead to increase involvement within an MMIG.<sup>12</sup> In addition, there was a significant difference in average yearly budgets between smaller and larger MMIGs, with no associations between funding and group size. A causal relationship was not established, but one might predict that with increased availability of funds, an MMIG could increase the quantity/quality of activities conducted to increase overall participation.

In addition, we found that 12.8% of MMIGs in our survey were unfunded. The lack of a funding source can make the establishment and maintenance of any group difficult, though not impossible. To this, we recommend first contacting the medical school to see if any funding is available for SIGs, as this was the most common source of funds for MMIGs nationwide. Other avenues such as fund-raising, dues, donations from alumni, and grants from national organizations could then be explored. Finally, combining meetings with other SIGs with funding could be helpful; for example, a military surgeon could speak to both a surgery interest group and MMIG at the same time, if other means of funding cannot be found.

Members of the HPSP were found to make up the majority of participants of MMIGs in our survey. Upwards of 75 to 80% of active U.S. military physicians are HPSP gradu-

ates, the remainder being graduates of the Uniformed Services University of Health Science (the U.S. military medical school) or (a small percentage) having entered the military during or after residency.<sup>13</sup> Unlike students that attend the Uniformed Services University of Health Science, students that participate in the HPSP and attend a civilian medical school are less likely to encounter aspects of military medicine during their medical school curriculum on a regular basis. Since these HPSP students eventually will make up the majority of military physicians, the importance of having MMIGs in medical schools to further expose and inform interested students about military medicine becomes more apparent.

Spreading information about military medicine was found to be the most important impact of having an MMIG at a medical school, per student leaders. Officer training, rotations at military installations in the fourth year of medical school, and the Joint Service Graduate Medical Educational Selection Board (the military match program) can be intimidating events that students wishing to pursue military medicine must complete.<sup>14</sup> Though information can be found online about such topics, being able to communicate in person with older students who have gone through the process would be beneficial. In addition, talking with active and/or retired military physicians about aspects of military medicine such as deployments, pay, living on base, family life as a military physician, and practicing military medicine would help answer many questions that medical students might have about military medicine, while at the same time providing potential career advice.<sup>15</sup> MMIGs serve an important role in connecting these individuals and opening doors to communication.

MMIG student leaders indicated a desire to have more Active Duty, National Guard, and Reserve military health care provider involvement in their groups. Although not all U.S. medical schools are located near a military installation, most medical schools have a small percentage of faculty with ties to the military, either active or retired. We recommend that such faculty should reach out to their school's MMIG and volunteer their time, if possible. Advice and stories from current and/or retired military providers are instrumental to medical students interested in military medicine. In addition, those same faculties could serve as mentors to medical students through their time in medical school. In medical schools without an MMIG present, we recommend current and/or retired military providers spend the time to inquire about the current interest level in the student population for starting an organization like an MMIG at their school. A motivated and encouraging faculty member can facilitate the process of starting such a group and increase its chances of success.

Limitations of this study include (1) a noncomplete response rate from both medical schools and student leaders, (2) the assumption that every U.S. medical school had students interested in military medicine, and (3) only student leaders' opinions were obtained during the secondary

survey. Something not yet determined that could be explored in the future is current medical student satisfaction with their school's MMIG, as well as their opinions for areas of improvement. Finally, previous studies have looked at the impact of nonmilitary SIG participation on choice of residency, but nothing is known about the long-term impact of MMIG participation during medical school on soon-to-be military physicians. Future studies could explore the effect of MMIG participation on military physicians using end points such as impact on career decisions made, career length, and overall satisfaction.

## CONCLUSIONS

In conclusion, we believe that MMIGs serve a critical role in the medical education of students interested in military medicine who attend civilian medical schools. Although the majority of medical schools that responded to our survey had such a group, both medical students and active/retired military faculty should work toward having some type of MMIG at every medical school for students interested in military medicine. Having a national organization (or branch of already existing organization) could help the number and quality of MMIGs in the United States, especially for allopathic medical schools. Finally, student leaders wished to have more active duty, National Guard, and reserve military health care provider involvement in their groups.

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