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# U.S. medical school admissions and enrollment practices: status of LGBTQ inclusivity

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## Abstract

**Context:** The failure to collect information on lesbian, gay, bisexual, transgender, and queer (LGBTQ) identity in healthcare and medical education is a part of a systemic problem that limits academic medical institutions' ability to address LGBTQ health disparities.

**Objectives:** To determine whether accurate sexual and gender minority (SGM) demographic data is being consistently collected for all US medical schools during admissions and enrollment, and whether differences exist between collection practices at osteopathic and allopathic schools.

**Methods:** Secure, confidential electronic surveys were sent via email in July 2019 to 180 osteopathic (n=42) and allopathic

(n=138) medical schools identified through the American Association of Colleges of Osteopathic Medicine Student Guide to Osteopathic Medical Colleges database and the American Association of Medical Colleges Medical School Admissions Requirements database. The nine question survey remained open through October 2019 and queried for; (1) the ability of students to self report SGM status during admissions and enrollment; and (2) availability of SGM specific resources and support services for students. Chi square analysis and the test for equality of proportions were performed.

**Results:** Seventy five of 180 (41.7%) programs responded to the survey; 74 provided at least partial data. Of the 75 respondent schools, 55 (73.3%) allowed applicants to self report a gender identity other than male or female, with 49 (87.5%) of those being allopathic schools compared with 6 (31.6%) osteopathic schools. Similarly, 15 (20.0%) allowed applicants to report sexual orientation, with 14 (25.5%) of those being allopathic schools compared with one (5.3%) osteopathic school. Fifty four of 74 (73.0%) programs allowed matriculants to self report a gender identity other than male or female; 11 of 74 (14.7%) allowed matriculants to report sexual orientation.

**Conclusions:** Demographics collection practices among American medical education programs that responded to our survey indicated that they undervalued sexual orientation and gender identity, with osteopathic programs being less likely than allopathic programs to report inclusive best practices in several areas. American medical education programs, and their supervising bodies, must update their practices with respect to the collection of sexual orientation and gender identity demographics as part of a holistic effort to address SGM health disparities.

**Keywords:** admissions; enrollment; gender; LGBTQ; medical education; sexual orientation.

The failure to collect information on lesbian, gay, bisexual, transgender, and queer (LGBTQ) identity in medicine has been a systemic problem that limits the United States' ability to address LGBTQ health inequities [1]. In 2014, only

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0.1% of National Institutes of Health (NIH) funded projects were related to LGBTQ health [2]. In 2015, the NIH developed the first agency wide strategic plan to focus on increasing funding for sexual and gender minority (SGM) health research; the strategic plan included the establishment of the Sexual and Gender Minority Research Office (SGMRO) to support scientists in the conduct of SGM related research [3].

The NIH also designated sexual and gender minorities as a health disparity population for which increased research funding would contribute to improved treatment and health outcomes. This designation built on previous strategies taken by the NIH to advance SGM health research [3]. The health disparity population designation also increased the likelihood that the NIH could improve the health of all Americans based on findings from prior research indicating that: (1) a diverse healthcare workforce was found to contribute to improved health outcomes as well as the wellbeing and sustainability of workplace satisfaction [4, 5]; and (2) approximately 80.0% of SGM providers either directly participated in or expressed interest in furthering SGM scholarship in healthcare [6].

In 2020, the National Academies of Sciences, Engineering, and Medicine released a report [7] that highlighted inequities faced by individuals from SGM groups across multiple domains, including but not limited to the legal system, public policy and stigma, community and civic engagement, family and social relationships, educational environment, economic stability, physical and mental health, and health care coverage, access, and utilization. This report [7] additionally identified significant deficits in demographic, population based research, and recommended changes to current SGM data collection, utilization, and reporting. Specifically, the report noted:

*In order to make valid claims about the status of SGD [sexual and gender diverse] populations in the United States, researchers, policy makers, and practitioners need accurate, consistent, and representative population-level data that describe SGD populations in all their complexity. [...] Entities throughout the federal statistical system; other federal agencies; state, local, and tribal departments and agencies; private entities; and other relevant stakeholders should consider adding measures of sexual orientation, gender identity, and intersex status to all data collection efforts and instruments, such as population-based surveys, administrative records, clinical records, and forms used to collect demographic data [7].*

Most recently, the SGMRO developed a new strategic plan for fiscal years 2021 through 2025 to continue addressing the need to expand research focused on the health and wellbeing of SGM individuals. Overall, these strategic plans and reports have highlighted the importance of collecting

demographic information about sexual orientation and gender identity (SOGI) in a multitude of settings in order to better understand and meet the needs of SGM populations [3].

Currently, the American Association of Colleges of Osteopathic Medicine (AACOM) and the American Association of Medical Colleges (AAMC) define underrepresented minorities in medicine (URMM) as “racial and ethnic populations [that] are underrepresented in the medical profession relative to their numbers in the general population.” [8, 9] SGM individuals may be underrepresented in the medical profession; however, without collecting SOGI demographics, there is no reliable way of knowing whether this is true, and thus, whether an adjustment to the URMM definition is needed. Further compounding this problem is the fact that little information is available on whether or how medical schools collect SOGI information. In the potential absence of inclusive demographics, osteopathic and allopathic medical schools may have minimized the multifocal benefits of diverse student populations and potentially burdened the scholastic pathway for LGBTQ individuals accepted for undergraduate medical training in the US [5, 6].

This study assessed the presence of SGM demographic data in medical school admission and enrollment protocols by surveying both osteopathic and allopathic medical schools in the United States. The goal of this study was to determine whether accurate SGM demographic data has been consistently collected for all US medical schools during admissions and enrollment, and whether differences currently exist between collection practices at osteopathic and allopathic schools. Overall, in the authors’ opinion, collection of accurate SGM demographic data for SGM students is essential to training and retaining highly qualified and motivated SGM medical students who will develop into competent practicing physicians. Understanding the current practice for collection of these data is an essential first step toward meeting this goal.

## Methods

This study used a prospective, descriptive, cross sectional design to administer an online survey to 180 osteopathic and allopathic medical school admissions offices in the US. The Vanderbilt University Human Research Protections Program reviewed this study protocol, and found the study to be exempt from Institutional Review Board approval.

To identify accredited osteopathic and allopathic medical schools, the AACOM Student Guide to Osteopathic Medical Colleges database and AAMC Medical School Admissions Requirements database were used [10, 11]. AAMC and AACOM last updated their respective databases in 2019 to reflect newly opened allopathic and

osteopathic schools. At the time of this study, the databases contained 138 allopathic medical schools and 42 osteopathic medical schools.

Subsequently, a secure, confidential electronic survey (Supplementary Material) was constructed by two authors (A.D., J.M.E.) on REDCap, an online survey and data collection platform developed by Vanderbilt University in Nashville, Tennessee. The survey was distributed to the general emails of the Departments of Admissions at 180 accredited US medical schools in July 2019; the survey remained open through October 2019. Automatic follow up emails were sent monthly during the study period to non-respondent schools. Data was collected for the following variables: (1) the ability of students to self report SGM status during admissions and enrollment; and (2) SGM specific resources and support services available to students. Data were analyzed using Microsoft Excel (Microsoft, Inc.) and Stata (StataCorp). Chi-square analysis and the test for equality of proportions were performed.

## Results

A total of 75 responses were collected from the admissions departments of osteopathic and allopathic medical schools, for a total response rate of 41.7%; 74 of the 75 (98.7%) completed the full survey. Of the 42 potential osteopathic medical schools, 19 responded (45.2%); of the 138 potential allopathic medical schools, 56 responded (40.6%). Statistics were calculated using all responses available for each question.

### Admissions practices

Of 75 total school respondents, only 15 (20.0%) gave applicants the opportunity to report sexual orientation, while 49 (73.3%) reported that applicants were given the opportunity to self-report a gender identity other than male or female.

Significant differences were observed between osteopathic and allopathic schools regarding the opportunity for applicants to self report SOGI demographics during the admissions process. Fourteen of 56 (25.5%) allopathic medical school admissions offices reported providing applicants with the opportunity to self report sexual orientation during admissions, compared with only one of 19 (5.3%) osteopathic schools ( $p \leq 0.001$ ). Similarly, 49 of 56 (87.5%) allopathic medical school admissions offices reported providing applicants with the opportunity to self report gender identity as other than male or female during admissions, compared with only six of 19 (31.6%) osteopathic schools ( $p = 0.063$ ; Table 1).

**Table 1:** Differences in sexual and gender minority self reporting opportunities during admissions and enrollment at osteopathic and allopathic schools.

Question number and text	Number	Percent	$\chi^2$ (degrees of freedom)	p-Value
Collects sexual orientation during admissions (n=75)				
Osteopathic	1	5.3	22.7 (1)	<0.001
Allopathic	14	25.0		
Collects gender identity during admissions (n=75)				
Osteopathic	6	31.6	3.2 (1)	0.063
Allopathic	49	87.5		
Collects sexual orientation during enrollment (n=74)				
Osteopathic	4	21.1	0.8 (1)	0.379
Allopathic	7	12.7		
Collects gender identity during enrollment (n=74)				
Osteopathic	12	63.2	1.2 (1)	0.264
Allopathic	42	76.4		
Offers LGBTQ specific services to students (n=75)				
Osteopathic	15	78.9	4.1 (1)	0.042
Allopathic	53	94.6		

### Enrollment practices

Of the 74 admissions offices that provided full survey responses, 11 (14.7%) reported that students were given the opportunity to self report sexual orientation during the enrollment process, while 54 (73.0%) reported that enrolled medical students were given the opportunity to self report gender identity other than male or female at the enrollment stage (Table 1).

Seven of 55 (12.7%) allopathic medical school admissions offices reported providing matriculates with the opportunity to self report sexual orientation during enrollment, compared with four of 19 (21.1%) osteopathic medical schools ( $p = 0.379$ ). Similarly, 42 of 55 (76.4%) allopathic medical school admissions offices reported providing applicants with the opportunity to self-report gender identity as other than male or female during enrollment compared with 12 of 19 (63.2%) osteopathic schools ( $p = 0.264$ ; Table 1).

### Comparison of applicant to enrollment practices

Noticeable differences in opportunities for self reporting of SOGI data were observed when medical schools were separated by type (Table 2). A decrease in opportunities for matriculants to self report gender identity and sexual

**Table 2:** Changes in response opportunities for sexual orientation and gender identity between application and enrollment (n=75).

	Number of medical schools	n, %	p-Value
Change in response opportunity rate for sexual orientation from application to enrollment			
Osteopathic	19	3 (+15.8%)	0.150
Allopathic	56 <sup>a</sup>	7 (-12.3%)	0.090
Change in response opportunity rate for gender identity from application to enrollment			
Osteopathic	19	6 (+31.6%)	0.051
Allopathic	56 <sup>a</sup>	6 (-11.1%)	0.127

<sup>a</sup>(n=55) for allopathic sexual orientation and gender identity reporting during *enrollment* compared with (n=56) for *application*. Change in response is reported in percentages, sensitive to n values.

orientation was noted for allopathic institutions, whereas an increase in opportunities for self reporting for both demographics was noted in osteopathic institutions between admission and enrollment. Responses from allopathic medical school responses revealed a 12.3% decrease (25.0% of schools during admission; 12.7% during enrollment) between application and enrollment in the number of medical schools that provided an opportunity to self-report of sexual orientation when comparing applicant to enrolled categories (p=0.090) and an 11.1% decrease (87.5% of schools during admissions; 76.4% during enrollment) from application to enrollment in the number of medical schools that provided an opportunity for self reporting of gender identity other than male or female (p=0.127; Table 2). Conversely, responses from osteopathic medical school responses revealed a 15.8% increase (5.3% of school during admissions; 21.1% during enrollment) from admissions to enrollment in the number of medical schools that provided an opportunity to self report sexual orientation (p=0.150), and a 31.6% increase (31.6% of schools during admissions; 63.2% during enrollment) from admissions to enrollment in the number of schools that provided an opportunity for self report of gender identity other than male or female (p=0.051; Table 2).

Finally, 68 of 75 programs (90.7%) reported offering specific services and resources to SGM students, including 53 of 56 (95.6%) allopathic medical schools and 15 of 19 (78.9%) osteopathic medical schools (p=0.042; Table 3).

## Discussion

This study may offer the first published data on US medical school practices in collecting SGM demographics during the admissions and enrollment processes. More studies are

**Table 3:** Special services and resources to SGM students (n=75).

Total number (%) of medical schools reporting	Number (%) of allopathic schools reporting	Number (%) of osteopathic schools reporting	p-Value <sup>a</sup>
68/75 (90.7)	53/56 (95.6)	15/19 (78.9)	0.042

<sup>a</sup>From test for equality of proportions

needed to provide data that will be key to describing the demographic landscape of current and future medical trainees, and will determine whether an expansion of the URMM definition is warranted. As approximately one of every four medical students in the US are being trained at an osteopathic institution [11], the inclusion of data from both osteopathic and allopathic institutions increases the applicability of the data.

## Gender identity and sexual orientation demographics

Overall, this study found low rates of opportunities for students to self report sexual orientation either during admissions (20.0%) or enrollment (14.7%). However, most programs reported that medical students have had the opportunity to self report gender identity other than male or female (73.3% during admissions and 73.0% during enrollment). One possible explanation may be that medical schools were already collecting binary sex demographics from their applicants, so adding more categories to this question may have been easier than adding an entirely new question to their forms.

Obedin-Maliver et al. [12] found that osteopathic medical schools reported lower rates of SGM curriculum content compared with allopathic counterparts. This study indicated similar trends in admissions and enrollment practices. Specifically, fewer osteopathic medical schools in this study reported collecting demographic data for sexual orientation or gender identity than allopathic schools. One possible explanation may be that since AAMC did not add gender identity to the primary application service until 2018 [13, 14] – which was prior to the time period during which data collection for this study occurred – neither allopathic nor osteopathic programs were given sexual orientation data from their respective primary application services. Therefore, all sexual orientation data reported in this study was collected in individual supplemental applications. It is important to note that as of the 2021 application cycle, the American Association of Colleges of Osteopathic Medicine Application



Services will allow students to select gender identity other than male or female, although the specific options to be used are currently unknown at the time of this review. The American Medical College Application Service (AMCAS) application services currently include the following options: male; female; Trans-male/Trans-man; Trans-female/Trans-woman; genderqueer/gender nonconforming, and different identity [13, 14].

## SGM student services

Previous studies [15, 16] have reported that SGM students experienced higher levels of stress and anxiety due to various social determinants like geographic location and race. Regardless of whether a student's sexual orientation and/or gender identity was publicly known, they may have encountered a multitude of barriers that could have adversely impacted medical school performance, like heterosexism, bullying from classmates, and nondisclosure to attending staff [16]. As a result, we attempted to quantify the number of schools that were offering services specific to SGM students. Most medical school respondents (90.7%) reported offering some type of resource specifically developed to address the needs of SGM students. However, our results also showed that osteopathic medical schools reported offering fewer services to SGM students once enrolled compared with allopathic counterparts. These findings suggest an inequitable system of service provision that may have consequences for student success and wellbeing. One prior study [17] that surveyed 1,334 osteopathic medical students about the inclusivity experienced at their respective osteopathic medical school showed that 66.1% of participants rated their osteopathic institution as non-inclusive [17]. Although information was not collected on the specific services provided, AAMC recently updated its Medical Student Admissions Requirements database to include a new search function called "Support Systems for Sexual and Gender Minority Students" that stratifies institutions based on the services provided to support future LGBTQ students [18]. No information has been found to indicate that AACOM offers a similar field in its database. Thus, while the update to the Medical School Admissions Requirements database is helpful, the lack of a similar function for AACOM represents a difference in how governing bodies are handling dissemination of information to potential students; that difference was reflected in the results of this study as well, and could potentially have similar, deleterious consequences for student success and wellbeing. If an LGBTQ, premedical student is considering applying to both osteopathic and allopathic programs, but

cannot determine what support services osteopathic schools might offer them, this could affect their decisions about matriculation. The differences in resources and service provision between allopathic and osteopathic medical school experiences for SGM applicants may be impacted as result of the single graduate medical education system [11].

## Future directions

Based on the results of our survey, the newly announced changes with 2021 application cycle of the AACOM primary application service that allows for selection of gender identity other than male or female as well as preferred pronouns [13, 14], and the relevance of our data to larger questions of policy and practice, the following recommendations are offered. First, as a matter of principle, AAMC, AACOM, and individual medical schools should value gender and sexual identity demographics equally in their application and enrollment processes, to successfully affirm SGM medical students and applicants. Both AAMC and AACOM could adopt an optional question for applicants to self report their sexual orientation, such as "What is your sexual orientation? (Check all that apply): heterosexual, gay, lesbian, bisexual, asexual, or other (please self-describe)." Given that both allopathic and osteopathic schools will be provided with gender identity data starting with the 2021 application cycle, the inclusion of sexual identity as an identifier will be essential as well. Visibility and representation of SGM individuals in medical school will be imperative for future successful health outcomes in a diversifying patient population [16].

Second, collection of data does not automatically guarantee that issues of inequity will be addressed by stakeholders. Consequently, it is recommended that institutions actively utilize the data and reaffirm the need for further studies examining the SGM student experience in undergraduate medical schools. Institutions should address the ways in which a diverse student body could improve health outcomes for marginalized patients [19–21]. Additionally, AAMC and AACOM should publish data on the number of applicants and matriculates by sexual orientation and gender identity, just as is currently done for race, ethnicity, and sex. Many inequities are systemic problems that will require systemic solutions.

Third, individual medical schools should individually evaluate whether they offer specific support services to SGM students, and whether they have specific curricula in place to teach students about the needs of SGM patients. Curriculum improvements must be based on research about best practices for undergraduate medical education,

and should be undertaken with consideration for the longitudinal incorporation of these topics into undergraduate, graduate, and continuing medical education [19].

In the future, more research is recommended to track the changes and improvements made in medical school admissions and enrollment processes pertaining to SGM inclusivity. First, institutions need to examine how SOGI data is collected internally at both admissions and enrollment stages, and if that data is being utilized to address a climate of SGM inclusivity. Second, a formal document identifying specific services offered to SGM students is needed as well as an evaluation of the efficacy of those services through student surveys and other outcomes assessments. Third, ongoing process and outcome evaluations need to be implemented in order to increase SGM inclusivity within official didactic and clinical clerkship course content. This information would contribute to the application of inclusive SGM practices to healthcare as a whole. Diverse medical school cohorts result in improved minority health competency [19–21].

While this study evaluated the number of medical schools that allowed self identification as SGM during admission and enrollment, future studies should track graduation rates among self reported SGM groups and subsequent matriculation into residency. This information will be essential for process and outcomes evaluations to measure the development of an inclusive environment for all SGM medical students.

## Limitations

A major limitation of this study was the response rate (41.7%). Aside from external barriers, internal data collection was limited to an electronic survey distributed by institutional email. The response rate could have been improved with a combination of both phone and email survey distribution. A second limitation of this study was the exclusion of Texas Medical and Dental School Application Service data. Additionally, since AAMC recently included gender identity in its demographic data collection, a third limitation of this study was lack of information about whether schools that utilized AMCAS reported that gender identity data was collected because of the AMCAS question for gender identity, or because of a question located within each medical school's secondary application. However, since schools that utilize AMCAS receive all primary application information, each institution would have access to gender identity demographics. Thus, the 87.5% rate of allopathic schools collecting gender identity

information from applicants may highlight a difference between collection and utilization.

## Conclusions

This study supports the conclusion that further changes are needed for medical school admissions and enrollment processes to support the inclusion and support of medical students from the SGM community. Self reported data from this respondent sample of US medical schools indicates a potentially undervalued importance of gender identity and sexual orientation. Osteopathic medical schools lag behind allopathic counterparts in practicing inclusivity within the admissions process, and also in providing resources and services for individual LGBTQ students. Medical schools cannot develop appropriate resources and support systems for SGM students without establishing a baseline for the type and level of resources and support needed. Medical schools in the US must strategically evaluate the demographic data to provide support for SGM students.

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