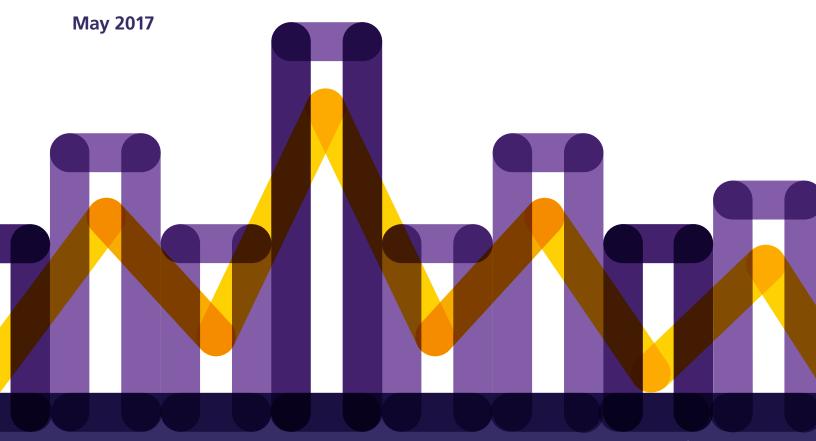


Results of the 2016 Medical School Enrollment Survey

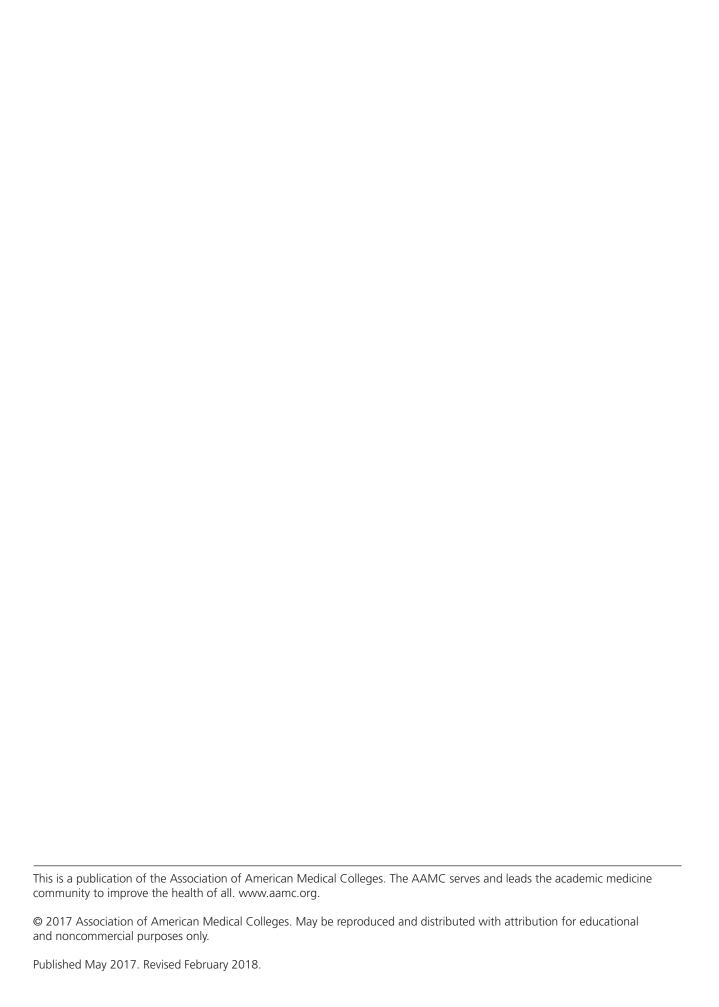
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Results of the 2016 Medical School Enrollment Survey





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The AAMC welcomes your comments and suggestions for future editions of this report.

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Executive Summary

This report examines first-year medical school matriculants over the past decade and projects first-year matriculants through 2025. The goal is to inform the academic medicine community, researchers, and policymakers about trends and issues related to U.S. medical school enrollment. The report is based on the 13th annual AAMC Survey of Medical School Enrollment Plans. Each fall, the survey is sent to deans at all MD-granting U.S. medical schools with preliminary accreditation or higher. This most recent survey was conducted between October 2016 and January 2017.

Key findings include:

• Medical school enrollment has grown 28 percent since 2002–2003, and 30 percent growth will be achieved by 2017–2018.

In 2006, in response to concerns of a likely future physician shortage, the AAMC recommended a 30 percent increase in first-year medical school enrollment by the 2015–2016 academic year (over 2002–2003 levels). Using the baseline of the 2002–2003 first-year enrollment of 16,488 students, a 30 percent increase corresponds to an increase of 4,946 students. The survey results indicate that the 30 percent goal will be attained by 2017–2018 and exceeded in future years.

• Concern about the availability of graduate medical education opportunities at the state and national levels remains high.

Medical schools reported concern about enrollment growth outpacing growth in graduate medical education (GME). Thirty-nine percent of medical schools reported concerns about their own incoming students' ability to find residency positions of their choice after medical school. Concern about GME availability at the state and national levels remained high in 2016 compared with 2015. In 2016, 62 percent of schools reported concerns about GME in their state compared with 80 percent at the national level.

• There has been a large increase in the percentage of schools experiencing competition for clinical training sites from DO-granting schools and other health care professional programs.

In 2016, 80 percent of respondents expressed concern about the number of clinical training sites, and 87 percent of respondents expressed concern about the supply of qualified primary care preceptors. Seventy-two percent expressed concern about the supply of qualified specialty preceptors. There has been a large increase in the percentage of schools experiencing competition from DO-granting schools and other health care professional programs, from about a quarter of schools in 2009 to more than half of schools in 2015 and 2016. Fifty-nine percent of respondents reported feeling pressure to pay for clinical training slots, though the majority of schools currently do not pay for clinical training.



- Schools are dedicated to increasing diversity in their student body.

 Almost all respondents (96 percent) indicated that they had (or were planning to have within two years) specific admission programs or policies designed to recruit a diverse student body. The majority of respondents had established or expected to establish programs/policies geared toward minorities underrepresented in medicine, students from disadvantaged backgrounds, and students from rural and underserved communities. Schools reported a variety of approaches, with a focus on outreach at high schools and local four-year universities and admission
- Enrollment increases at DO-granting schools continue to accelerate. First-year enrollment at DO-granting schools in 2021–2022 is expected to reach 8,800, a 196 percent increase from 2,968 students in 2002–2003. Combined first-year enrollment at existing MD-granting and DO-granting medical schools is projected to reach 31,025 by 2021–2022, an increase of 59 percent compared with 2002–2003.

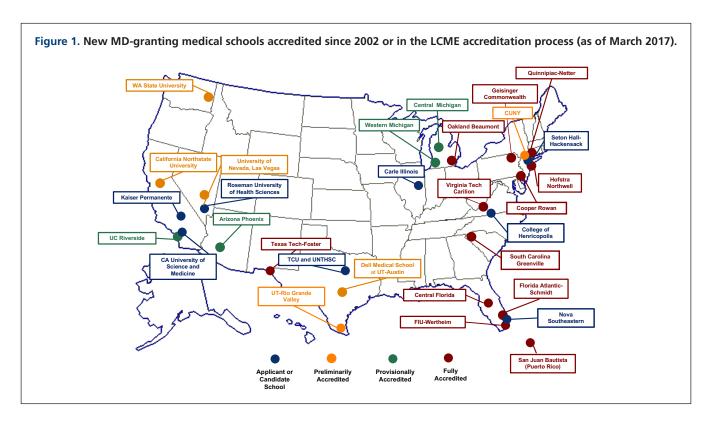
strategies such as holistic review.



Background

In 2006, in response to concerns of a future physician shortage, the AAMC recommended a 30 percent increase in enrollment at LCME-accredited medical schools by 2015.¹ Using the first-year enrollment of 16,488 students in 2002–2003 as a baseline, a 30 percent increase would mean 21,434 first-year medical students, an increase of 4,946 students. The annual Survey of Medical School Enrollment Plans monitors progress toward this goal and provides guidance to the medical education community and other interested parties.

To meet the 30 percent goal, the AAMC recommended enrollment expansion at existing medical schools and the creation of new medical schools. In 2002, there were 125 LCME-accredited medical schools in the United States. As of March 2017, the LCME had granted full, provisional, or preliminary accreditation status to 22 more medical schools, for a total of 147 U.S. MD-granting medical schools.² Additionally, the American Osteopathic Association's Commission on Osteopathic College Accreditation (COCA) lists 33 DO-granting schools operating at 48 sites during the 2016–2017 academic year, an increase of 13 DO-granting schools since 2002–2003.³



Association of American Medical Colleges. Statement on the Physician Workforce. June 2006. www.aamc.org/download/55458/data/workforceposition.pdf. Accessed March 3, 2017.

^{2.} Liaison Committee on Medical Education. Medical School Directory. 2017. www.lcme.org/directory/. Accessed March 3, 2017.

Commission on Osteopathic College Accreditation. Colleges of Osteopathic Medicine. March 2017. www.osteopathic.org/inside-aoa/accreditation/COM-accreditation/Documents/current-list-of-colleges-of-osteopathic-medicine.pdf. Accessed March 3, 2017.





The LCME lists an additional 8 schools as having applicant or candidate status (see **Figure 1**), and the COCA lists an additional 14 schools as having applicant or preaccreditation status.⁴ Although preaccredited schools cannot yet enroll students, we expect that some will attain accreditation in time to enroll students before 2025–2026.

For the purposes of this report, we included enrollment projections for only the 147 MD-granting schools and 33 DO-granting schools that have received full, provisional, or preliminary accreditation as of March 2017.

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^{4.} Commission on Osteopathic College Accreditation. New and Developing COMs and Campuses. February 7, 2017. www.osteopathic.org/inside-aoa/accreditation/COM-accreditation/Documents/new-and-developing-colleges-of-osteopathic-medicine.pdf. Accessed March 7, 2017.



Survey Methodology

The AAMC administered the 13th annual Survey of Medical School Enrollment Plans in October 2016 to the deans of 145 U.S. medical schools that were fully, provisionally, or preliminarily LCME-accredited at that time. An email introduction included a link to the Web-based survey. Deans who did not initially respond received follow-up emails. Of the schools surveyed, 132 responded (91 percent). Survey information was provided by the dean of the medical school or a designated appointee, most often an associate dean.

Respondents were asked to provide their medical school's number of matriculants for the current year, as well as their anticipated number of matriculants for the next five years, ending with the 2021–2022 academic year. For 12 of the 13 schools that did not provide enrollment plans on the 2016 survey, reported plans from the 2015 survey were used. For the one school that did not provide enrollment plans in 2015 or 2016, matriculant data for the 2016 academic year were substituted for each projected year. Historic matriculant data in this report are from the AAMC Student Records System.

The survey asked schools to report their concerns about clerkship opportunities and graduate medical education placements. Additionally, the survey included prompts about efforts to increase student diversity. We present trends over time using available data from previous surveys.

Data were also obtained from the American Association of Colleges of Osteopathic Medicine (AACOM) about enrollment plans at DO-granting schools and are included in Table 3 and Figure 10. Data were based on accreditation data and a survey of college of osteopathic medicine deans administered in spring 2016.



Results

Current Enrollment and Projected Trends in the Next Five Years

First-year enrollment at LCME-accredited medical schools has increased by 28 percent from the 2002–2003 baseline level as of the 2016–2017 academic year and is projected to increase by 35 percent from the 2002–2003 baseline by 2021–2022. Of the 125 schools that were accredited as of 2002–2003, 25 (20 percent) plan to grow from 2017–2018 to 2021–2022. By comparison, 8 of the 22 schools accredited since 2002–2003 (36 percent) plan to grow during that period. Cumulatively, the currently accredited 147 medical schools are projected to reach the targeted 30 percent increase in enrollment by 2017–2018, with further increases in succeeding years (**Table 1**).

Table 1. Summary of Baseline and Current First-Year Enrollment and Projected First-Year Enrollment Through 2021

		Baseline	Current			Projected		
	Group	2002	2016	2017	2018	2019	2020	2021
Α.	Schools accredited as of 2002 (n=125)	16,488	19,320	19,568	19,776	19,897	19,943	19,960
	# Increase from 2002		2,832	3,080	3,288	3,409	3,455	3,472
	% Increase from 2002		17.2%	18.7%	19.9%	20.7%	21.0%	21.1%
В.	Schools accredited after 2002 (n=22)		1,710	1,942	2,050	2,195	2,250	2,265
C.	Total (n=147) (A + B)	16,488	21,030	21,510	21,826	22,092	22,193	22,225
	# Increase from 2002		4,542	5,022	5,338	5,604	5,705	5,737
	% Increase from 2002		27.5%	30.5%	32.4%	34.0%	34.6%	34.8%

Enrollment Growth by Public/Private Status, Region, and Accreditation Year

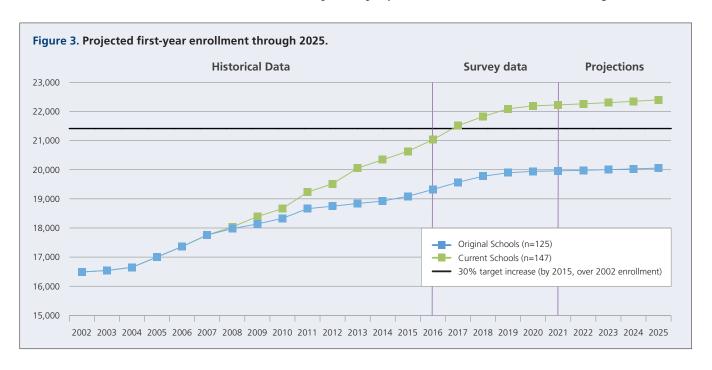
On the basis of these reported projections, increases at the 125 schools that were LCME-accredited as of 2002–2003 would account for 61 percent of the projected growth in first-year enrollment between 2002–2003 and 2021–2022. The growth at new schools since 2002–2003 would account for the remaining 39 percent of the overall 2002–2021 growth. The majority (63 percent) of the projected growth in enrollment between 2002–2003 and 2021–2022 is expected to occur at public schools. Nationally, schools in the Southern region would account for the largest portion (41 percent) of the projected increase in enrollment between 2002–2003 and 2021–2022 (**Figure 2**).





Projections Beyond 2021

To project enrollment beyond 2021–2022, the last academic year for which we requested enrollment data on the survey, we applied the rate of growth reported between the last two academic years of survey data for each school. Five of the 125 schools accredited as of 2002–2003 and 2 of the 22 newly accredited schools projected that they would grow from 2020–2021 to 2021–2022. Most of the remaining schools projected no growth during that period, and two schools projected a small decline. Overall, enrollment is expected to grow by a small fraction of a percent per year from 2021–2022 to 2025–2026 (**Figure 3**).





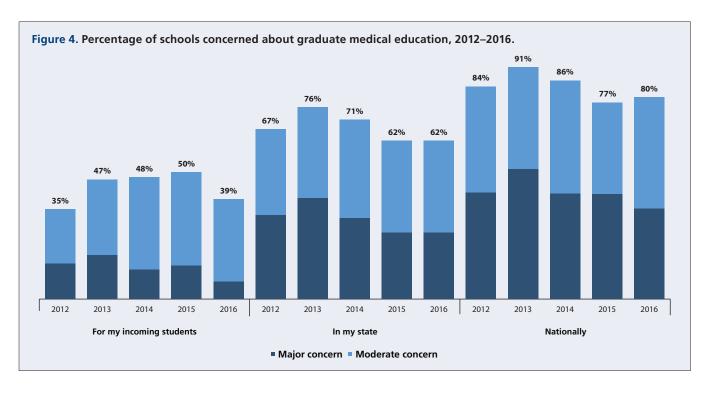
Residency/Graduate Medical Education (GME):

Medical training that occurs after receiving the MD or DO degree, typically three to seven years at teaching hospitals and their associated ambulatory settings. Completing a GME program is required to be licensed and practice independently in the United States.

Graduate Medical Education Concerns

Starting in 2012, the survey included two questions addressing concerns about GME. The first question asked deans to consider their own students: "What is your level of concern about your incoming students' ability to find a residency training position of their choice upon completion of medical school?" The second question broadened the scope to the state and national levels, asking, "Now thinking more broadly, what is your level of concern that the overall expansion in medical school enrollment could produce more graduates than graduate medical education can accommodate?" Response options were "no concern," "minor concern," "moderate concern," and "major concern."

The percentage of respondents who expressed "major" or "moderate" concern about their incoming students' ability to find residency positions of their choice after medical school increased from 35 percent in 2012 to 50 percent in 2015 before dropping to 39 percent in 2016 (**Figure 4**). Concerns about the impact of medical school enrollment expansion on GME at the state and national levels have declined somewhat since 2013. In 2016, 62 percent of schools reported concerns about GME in their state compared with 80 percent at the national level.



The prevalence of concern about GME at the state and local levels was compared by geographic region, public/private status, and whether schools were accredited before or after 2002, but there were no statistically significant differences.

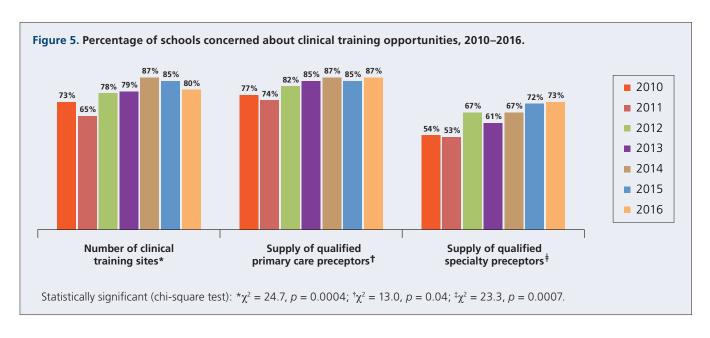


Clerkship/Clinical Training:

A core or required clinical course or rotation in a specialty that takes place during the third or fourth year of undergraduate medical education.

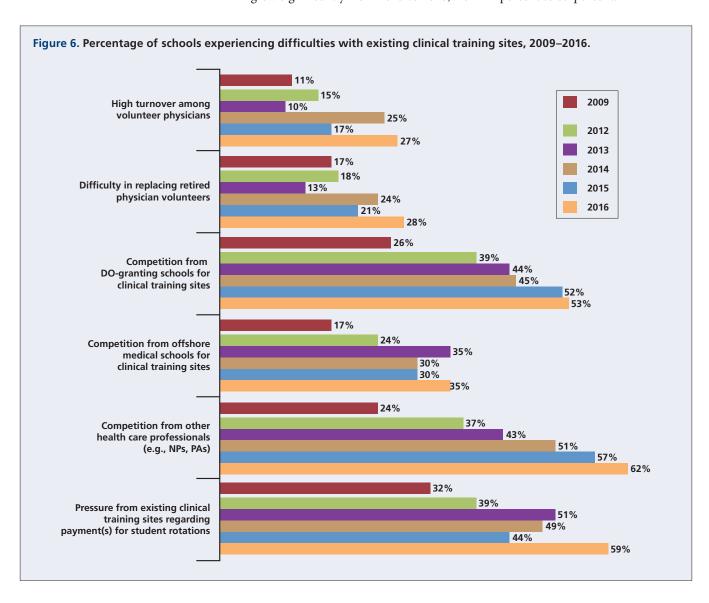
Clinical Training Opportunities for Students

The survey asked schools to rate their concerns about the number of clinical training sites, the supply of qualified primary care preceptors, and the supply of qualified specialty preceptors (**Figure 5**). Responses were collapsed into two categories: "concerned" and "not concerned." Eighty percent of schools surveyed in 2016 were concerned about the number of sites, and 87 percent of schools were concerned about the supply of qualified primary care preceptors. The share of schools that were concerned about the supply of qualified specialty preceptors grew from just over half of schools surveyed in 2010 to 73 percent of schools in 2016.





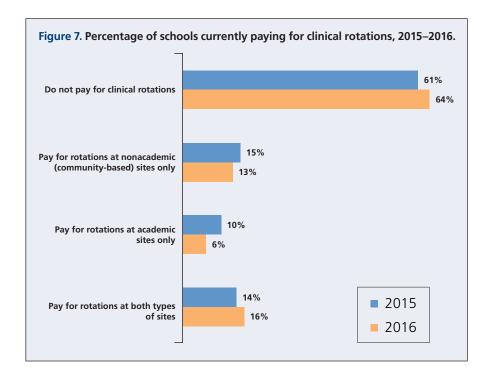
The survey also asked respondents to report whether they have recently experienced difficulties with their existing clinical training sites, such as challenges with volunteer physicians, competition from other schools and programs, or pressure to pay for student rotations (**Figure 6**). We compared 2016 responses with results from previous years in which this question was asked. Results show a large increase in the percentage of schools experiencing competition from DO-granting schools and other health care professional programs. Since 2009, the percentage of medical schools experiencing competition for undergraduate clinical training sites from DO-granting schools and other health care professional programs grew from about a quarter of schools in 2009 to over half of schools in 2015 and 2016. The percentage of schools experiencing competition from offshore medical schools grew substantially since the question was asked in 2009, and it has increased to 35 percent in 2016. The percentage of schools experiencing pressure to pay for student rotations also grew significantly from 2015 to 2016, from 44 percent to 59 percent.





Payments for Clinical Rotations

In 2015, we introduced the following question: "Do you currently pay for any of your students to have clinical rotations in either academic or nonacademic (i.e. community-based) training sites?" Respondents were allowed to select more than one option. While the majority of schools (64 percent) in 2016 reported that they do not pay for students to have clinical rotations, 22 percent of schools reported paying for one or more students to rotate at academic clinical sites and 29 percent reported paying for one or more rotations at nonacademic clinical sites (Figure 7). We asked schools that pay for rotations at clinical training sites to briefly describe their payment practices, and responses varied widely. Schools were more likely to pay sites for infrastructure and personnel time than a fixed fee per student, and many schools commented that their payment practices were not uniform across all clinical training sites.





Diversity Recruitment Plans and Strategies

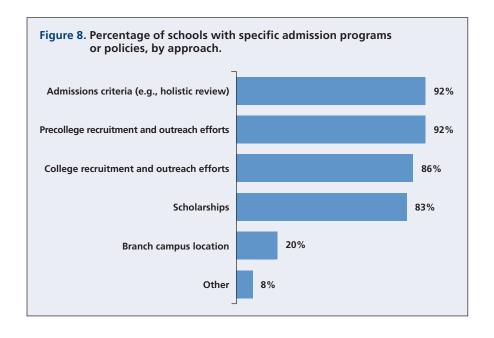
The survey included the following question: "Do you have (or are you planning to have within two years) specific admissions programs or policies designed to recruit a diverse student body?" Subsequent questions asked respondents to describe the specific population groups included in their student recruitment policies and what measures they were taking to include these groups. Note that the percentages in **Table 2** and **Figures 8** and **9** may not sum to 100 percent because they represent the percentage of all schools that responded to the survey, not just those that indicated they had targeted programs or policies. Respondents could select more than one group.

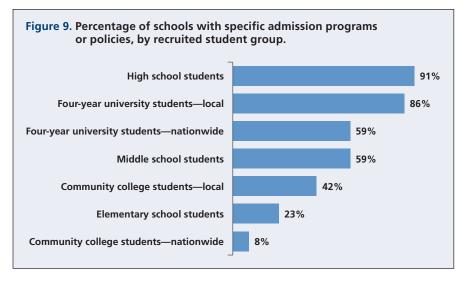
Of schools responding to the survey, 96 percent indicated that they had (or were planning to have within two years) specific admission programs or policies designed to recruit a diverse student body. Ninety-two percent of schools that responded to the survey indicated that they have or plan to have specific admission programs or policies to recruit minority groups currently underrepresented in medicine, and the majority of schools have or plan to have programs or policies to recruit students from other groups (**Table 2**). The most common approaches included college recruitment and outreach and admission strategies such as holistic review (**Figure 8**). More than half of schools reported that recruitment and outreach efforts focused on middle school students, high school students, or four-year university student, with an overwhelming majority of schools focused on high school students or local four-year university students (**Figure 9**).

Table 2. Percentage of Schools with Admission Programs or Policies That Include Specific Groups

Included group	Established (greater than or equal to two years)	Recently implemented (less than two years)	Planned (within the next two years)	No plans at this time
Minority groups currently underrepresented in medicine	82%	9%	1%	0%
Students with disadvantaged backgrounds	79%	10%	3%	2%
Students from rural communities	54%	7%	1%	26%
Students from underserved communities	54%	7%	2%	21%
Students from local underserved communities	63%	7%	3%	13%
Other	13%	1%	0%	13%





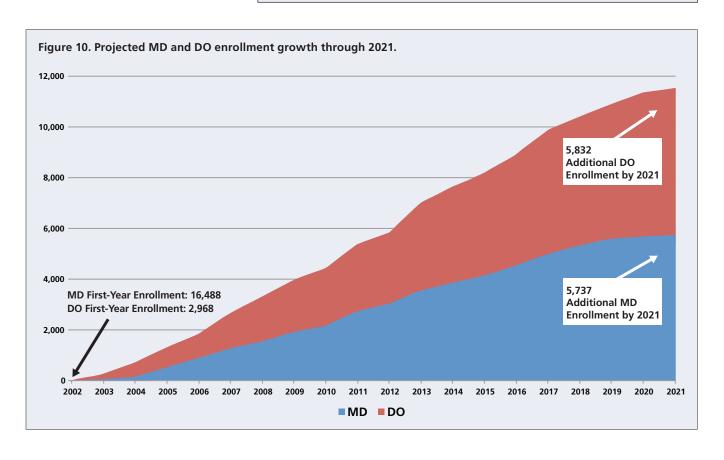




Combined MD and DO Projections

The AACOM uses survey and accreditation data to project its future enrollment. The 2016 new first-year enrollment of 7,369 at DO-granting schools represents a 148 percent increase over enrollment in 2002. AACOM estimates total new first-year enrollment will reach 8,800 by 2021, which represents a 196 percent increase over 2002 first-year enrollment. By 2021, MD- and DO-granting schools would have a combined increase of 59 percent, enrolling an additional 11,569 students in their first-year classes compared with 2002 (**Table 3, Figure 10**). About half of that growth would come from DO-granting schools.

	2002 Base	2016 Current			2021 Projected			
	Enrollment	Enrollment	# Increase	% Increase	Enrollment	# Increase	% Increase	
MD	16,488	21,030	4,542	28%	22,225	5,737	35%	
DO	2,968	7,369	4,401	148%	8,800	5,832	196%	
Total	19,456	28,399	8,943	46%	31,025	11,569	59%	





Discussion

Over the past decade, the medical education community has responded to the AAMC's call for an increase in medical school enrollment to address a projected national shortage of physicians. Since 2002, the LCME accredited 22 new medical schools, for a total of 147 LCME-accredited schools as of March 2017. Collectively, these schools expanded enrollment by 28 percent over 2002 levels as of the 2016–2017 academic year, just short of the AAMC's 30 percent goal, which will be reached by 2017–2018 and exceeded in future years. Additionally, DO-granting schools are expected to enroll a total of 8,800 first-year students by 2021–2022, which could be even higher if schools in the applicant stage become eligible to enroll students.

As student enrollment grows, school administrators are concerned about the number of available clerkship sites and the supply of preceptors. As other health professions are also growing, clerkship opportunities are proving to be more competitive. More than half of survey respondents reported experiencing competition with DO-granting schools and other health disciplines, such as physician assistant and nurse practitioner programs, up from only a quarter of schools in 2009. A large share of respondents continues to experience pressure to pay for clinical training slots, though the majority of schools currently do not pay for clinical training.

The nation's medical schools are committed to developing a diverse student body. The majority of schools have specific admission programs or policies designed to increase the number of students from minority groups currently underrepresented in medicine, students from disadvantaged backgrounds, and students from rural and/or underserved communities.

Over the past two years, the AAMC has created new programs, initiatives, and publications that focus on embracing a broad definition of diversity and inclusion to support members' efforts. In 2015, the AAMC released "Altering the Course: Black Males in Medicine," a detailed report on the decline in black males applying to and matriculating into medical school. The AAMC also released several resources on curricular and institutional climate changes to improve health care for individuals who are lesbian, gay, bisexual, transgender (LGBT), gender nonconforming (GNC), and/or born with differences of sex development (DSD) and resources to help design, evaluate, and assess cultural competence curricula. The service of the property of the property

 $^{5. \}quad Nivet \, MA. \, A \, diversity \, 3.0 \, update; \, Are \, we \, moving \, the \, needle \, enough? \, A cademic \, Medicine. \, 2015; \, 90(12):1591-1593.$

^{6.} Association of American Medical Colleges. Altering the Course: Black Males in Medicine. August 2015. members.aamc.org/eweb/DynamicPage.aspx?Action= Add&ObjectKeyFrom=1A83491A-9853-4C87-86A4-F7D95601C2E2&WebCode=PubDetailAdd&DoNotSave=yes&ParentObject=CentralizedOrderEntry&ParentDataObject=Invoice%20Detail&ivd_formkey=69202792-63d7-4ba2-bf4e-a0da41270555&ivd_prc_prd_key=78B38423-34D5-433C-B4FB-76F0F5CAE008.

^{7.} Association of American Medical Colleges. Implementing Curricular and Institutional Climate Changes to Improve Health Care for Individuals Who Are LGBT, Gender Nonconforming, or Born with DSD. 2014. offers.aamc.org/lgbt-dsd-health.

Association of American Medical Colleges. Assessing Change: Evaluating Cultural Competence Education and Training. March 2015. www.aamc.org/initiatives/diversity/425472/assessingchange.html.





Enrollment expansion alone will not resolve the expected shortage of between 40,800 and 104,900 physicians by 2030.9 Medical schools will soon reach the 30 percent goal in enrollment growth and continue to increase beyond that 30 percent growth goal in future years, but ACGME-accredited entry-level residency positions are continuing to grow at a rate of about 1 percent per year. Thirty-nine percent of medical schools are concerned about their incoming students' ability to find a residency training position of their choice upon completion of medical school, and federal caps on Medicare-funded residency training positions remain effectively frozen at 1996 levels. In response to these challenges, the AAMC, working with the nation's medical schools, teaching hospitals, and health systems, is undertaking a five-year plan to optimize GME in the United States. The AAMC has outlined three strategic areas of this initiative: investing in future physicians; optimizing the environment for learning, care, and discovery; and preparing the physician and physician-scientist for the 21st century. Continued monitoring of medical school enrollment is crucial to support the optimizing GME initiative.

^{9.} IHS, Inc. The 2017 Update: Complexities of Physician Supply and Demand: Projections from 2015 to 2030. aamc-black.global.ssl.fastly.net/production/media/filer_public/a5/c3/a5c3d565-14ec-48fb-974b-99fafaeecb00/aamc_projections_update_2017.pdf. February 2017.

^{10.} Jolly P, Erikson C, Garrison G. U.S. graduate medical education and physician specialty choice. Academic Medicine. 2012; 88:468-474.

^{11.} Association of American Medical Colleges. Optimizing Graduate Medical Education. www.aamc.org/initiatives/optimizinggme.



Appendix. New Schools Accredited Since 2002 or in the LCME Accreditation Process^{12–14}

Fully Accredited Since 2002 (n = 12)

- Charles E. Schmidt College of Medicine at Florida Atlantic University (Florida)
- Florida International University Herbert Wertheim College of Medicine (Florida)
- University of Central Florida College of Medicine (Florida)
- Oakland University William Beaumont School of Medicine (Michigan)
- Hofstra Northwell School of Medicine at Hofstra University (New York)
- Geisinger Commonwealth Medical College (Pennsylvania)
- San Juan Bautista School of Medicine (Puerto Rico)
- Paul L. Foster School of Medicine Texas Tech University Health Sciences Center (Texas)
- Virginia Tech Carilion School of Medicine (Virginia)
- University of South Carolina School of Medicine, Greenville (South Carolina)
- Frank H. Netter MD School of Medicine at Quinnipiac University (Connecticut)
- Cooper Medical School of Rowan University (New Jersey)

Schools with Provisional Accreditation (n = 4)

- University of California, Riverside, School of Medicine (California)
- University of Arizona College of Medicine-Phoenix (Arizona)
- Central Michigan University College of Medicine (Michigan)
- Western Michigan University Homer Stryker M.D. School of Medicine (Michigan)

Schools with Preliminary Accreditation (n = 6)

- California Northstate University College of Medicine (California)
- CUNY School of Medicine (New York)
- University of Texas at Austin Dell Medical School (Texas)
- University of Texas Rio Grande Valley School of Medicine (Texas)
- University of Nevada, Las Vegas School of Medicine (Nevada)
- Washington State University Elson S. Floyd College of Medicine (Washington)

Schools with Candidate Status (n = 1)

• Carle Illinois College of Medicine (Illinois)

Schools with Applicant Status (n = 7)

- California University of Science and Medicine-School of Medicine (California)
- Seton Hall-Hackensack School of Medicine (New Jersey)
- TCU and UNTHSC School of Medicine (Texas)
- College of Henricopolis School of Medicine (Virginia)
- Kaiser Permanente School of Medicine (California)
- · Nova Southeastern University College of Allopathic Medicine (Florida)
- Roseman University of Health Sciences College of Medicine (Nevada)

^{12.} As of March 2017.

^{13.} View the Glossary of LCME Accreditation Terminology for full definitions of each accreditation status. www.lcme.org/glossary.

^{14.} Liaison Committee on Medical Education. Medical School Directory. 2017. www.lcme.org/directory. Accessed March 6, 2017.



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