

# Osteopathic Students' Graduate Medical Education Aspirations Versus Realities: The Relationship of Osteopathic Medicine and Primary Care

Mark Cummings, PhD

## Abstract

Osteopathic medicine is closely identified with primary care. The mission statements of a majority of colleges of osteopathic medicine (COMs) mention the goal of producing primary care physicians. By far, there are more family medicine and internal medicine residency programs in the American Osteopathic Association graduate medical education (GME) system than programs for any other specialty. In addition, the osteopathic profession is embarking on a new direction to ensure COM graduates are trained as practice-ready primary care physicians.

In counterpoint to the osteopathic profession's emphasis on primary care, the majority of entering and graduating osteopathic medical students express preferences for residencies in non-primary care specialties. When graduating students confront their GME options, however, they discover their choices for non-primary care specialties are limited. Currently, approximately two-thirds of COM graduates end up in a primary care residency. The creation of a unified GME accreditation system under the Accreditation Council for Graduate Medical Education (ACGME) may further consolidate the osteopathic identity with primary care: Osteopathic

training institutions may reduce the number of non-primary care programs they offer, which would allow them to increase enrollment in primary care programs to meet ACGME standards and remain below their Medicare caps. Additionally, in the National Resident Matching Program Match, selection patterns by program directors for competitive non-primary care residencies currently favor U.S. MDs. Therefore, while osteopathic students enter COMs aspiring to careers in non-primary care specialties, they are encountering a GME environment that offers them a shrinking number of alternatives.

Osteopathy began as an alternative philosophy of medicine in the late 19th century.<sup>1</sup> Developed outside the medical mainstream, osteopathic medicine had to build its own educational system within a network of osteopathic hospitals that emphasized the training of generalist physicians. Since 1993, however, osteopathic medicine has expanded quickly, with the opening of 15 new colleges of osteopathic medicine (COMs), 4 new branch campuses, and 6 new remote teaching sites as well as dynamic increases in class size at existing COMs.<sup>2</sup> This rapid growth has created pressure on the osteopathic profession to provide an adequate supply of American Osteopathic Association (AOA)-approved graduate medical education (GME) programs. As these

programs have been unable to keep pace with the demand, a majority of COM graduates complete their GME training in programs accredited by the Accreditation Council for Graduate Medical Education (ACGME).<sup>3</sup> Today, more than one in four medical students in the United States is enrolled in a COM.<sup>4</sup> To learn more about this new generation of osteopathic physicians it is important to ask, What are their career aspirations and what realities do they encounter in obtaining a GME position of their choice?

Applicants to a COM are quickly made aware of the osteopathic profession's emphasis on primary care. The mission statements of a majority of COMs include a commitment to produce primary care physicians.<sup>5</sup> Several COMs founded since 1993 are located in rural and smaller towns in medically underserved geographic regions that have a critical need for more primary care physicians. Each time a new COM is proposed and goes through the AOA Commission on Osteopathic College Accreditation (COCA) accreditation process, the institution announces its intention to generate a new cadre of

primary care physicians who will assist in addressing the physician deficits anticipated in primary care in the coming decades.<sup>6-12</sup>

In envisioning the future of osteopathic medicine, the American Association of Colleges of Osteopathic Medicine (AACOM) and the AOA collaborated in the development of a new Pathway model for training osteopathic physicians that reinforces a profession-wide commitment to primary care. In their proposed plan, released in 2013 and entitled *Building the Future: Educating the 21st Century Physician*,<sup>13</sup> they call for reform of the way students earn the DO degree and advocate new ways of producing practice-ready primary care physicians to meet the evolving workforce needs of the U.S. health care delivery system.

## Student Interest in Primary Care and Other Career Choices

Since 2007, the AACOM has collected extensive survey data of first-year, entering osteopathic medical students and graduating seniors.<sup>14</sup> At the time of writing, the available survey reports for entering students covered seven

**M. Cummings** is associate dean (emeritus), Michigan State University College of Osteopathic Medicine, East Lansing, Michigan, and consultant, Germane Solutions, Dayton, Ohio.

Correspondence should be addressed to Mark Cummings; e-mail: cummin67@msu.edu; telephone: (517) 899-8020.

*Acad Med.* 2016;91:36-41.

First published online September 21, 2015  
doi: 10.1097/ACM.0000000000000892

academic years (2007–2008 through 2013–2014; average response rate, 78%), while the reports for graduating seniors covered six academic years (2007–2008 through 2012–2013; average response rate, 76%). The questions asked of the two groups of students remained constant, which allows for accurate trending over these periods. The surveys offered students 34 GME specialty choices, including the primary care specialties of family medicine, general internal medicine, and general pediatrics as well as subspecialty options for internal medicine and pediatrics.

Given osteopathic medicine’s open advocacy of and historical link to primary care, the educational mission of COMs, and the future plans articulated by AACOM and AOA leaders, one might expect that enthusiasm for primary care careers among first-year students would be high. Yet, the results of the AACOM entering student surveys indicate otherwise: Over the seven-year period, entering students consistently expressed only mild interest in pursuing careers in family medicine, general internal medicine, and general pediatrics<sup>14</sup> (see Table 1). Although family medicine fared better than general internal medicine or general pediatrics, only 16% to 24% of entering students were interested in becoming a primary care physician. The 2013–2014 survey report, for example, indicates that

more entering students wanted to become emergency medicine physicians (13%) than family medicine doctors (12%), and more entering students wanted to specialize in orthopedic surgery (7%) than in either general internal medicine (4%) or general pediatrics (4%). That same year, 9% of entering students expressed interest in internal medicine subspecialties and 6% indicated interest in pediatric subspecialties.<sup>14</sup>

Throughout the four years of medical school, students at COMs are exposed to an educational environment that emphasizes primary care. The COM curriculum is weighted toward primary care, but during the clinical years students have the opportunity to gain experience in different medical specialties. Elective rotations, particularly in the fourth year, are designed to allow students to explore career choices and to showcase their talents. At the stage when fourth-year students are asked to complete the AACOM graduating seniors survey, they are savvy about their chances for selection into residencies in preferred specialties and are sufficiently experienced to make more definitive responses about their career direction. As reported in Table 2, over the six-year period, fewer than 2% of graduating seniors responding to the survey were undecided about their specialty choice.<sup>14</sup> Few differences can be noted in the responses of graduating

seniors compared with those of entering students, although graduating seniors’ interest in general internal medicine was marginally higher and in general pediatrics was marginally lower. One notable difference is in interest in family medicine: On average for the reported years, interest in family medicine was 12% for entering students but 19% for graduating seniors<sup>14</sup> (see Tables 1 and 2).

It is difficult to pinpoint whether graduating seniors’ greater interest in family medicine is the result of COM influences, personal experiences in the clinical years, or the recognition by lower-performing students of limited opportunities for selection into highly competitive residency programs. In recent years, residency programs in primary care specialties, especially family medicine, have found it challenging to fill all offered positions in the AOA and National Resident Matching Program (NRMP) Matches, and primary care programs are considered to be less competitive options for both osteopathic and allopathic graduates.<sup>15</sup> In 2012, for example, only 46% of the family medicine residents in ACGME programs were U.S. medical graduates (U.S. MDs).<sup>16</sup> Regardless, the AACOM survey results indicate that more than two-thirds of graduating osteopathic students indicate a preference for GME in non–primary care specialties.

**Table 1**  
**First-Year Osteopathic Medical Students’ Primary Care Specialty Selection Plans, AACOM Entering Student Surveys, 2007–2008 Through 2013–2014**

Academic year	No. of first-year enrollees <sup>a</sup>	No. (%) responding <sup>b</sup>	% of respondents planning to select a primary care specialty <sup>b,c</sup>				% of respondents selecting undecided/indefinite <sup>b</sup>
			Family medicine	General internal medicine	General pediatrics	Total	
2013–2014	6,636	5,698 (86)	12	4	4	20	12
2012–2013	5,986	4,935 (82)	11	5	5	21	12
2011–2012	5,788	4,903 (85)	13	5	5	23	16
2010–2011	5,428	4,337 (80)	14	5	5	24	13
2009–2010	5,227	3,230 (62)	13	5	5	23	13
2008–2009	4,950	— (71) <sup>d</sup>	10.1	2.8	2.8	15.7	16
2007–2008	4,528	— (81) <sup>d</sup>	10.7	3.1	4.8	18.6	16

Abbreviation: AACOM indicates American Association of Colleges of Osteopathic Medicine.

<sup>a</sup>Data source: AACOM.<sup>27</sup>

<sup>b</sup>Data source: AACOM.<sup>14</sup>

<sup>c</sup>Rounding of these percentages to whole numbers started with the 2009–2010 report. Two colleges of osteopathic medicine did not participate in the 2008–2009 and 2007–2008 surveys.

<sup>d</sup>Two colleges of osteopathic medicine did not participate in the survey; otherwise, the median response rate would have been 87% in 2008–2009 and 88% in 2007–2008.<sup>14</sup> Numbers of respondents are not available for these two years.

Table 2

**Graduating Osteopathic Medical Students' Primary Care Specialty Selection Plans, AACOM Graduating Seniors Surveys, 2007–2008 Through 2012–2013**

Academic year	No. of seniors <sup>a</sup>	No. (%) responding <sup>b</sup>	% of respondents planning to select a primary care specialty <sup>b</sup>				% of respondents selecting undecided/indefinite <sup>b</sup>
			Family medicine	General internal medicine	General pediatrics	Total	
2012–2013	4,806	3,596 (75)	21	7	4	32	1
2011–2012	4,458	3,489 (78)	21	7	4	32	1
2010–2011	4,159	3,025 (73)	20	7	5	32	2
2009–2010	3,631	2,842 (78)	20	8	4	32	1
2008–2009	3,588	— (76) <sup>c</sup>	17.6	3.3	2.7	23.6	1.7
2007–2008	3,364	— (78) <sup>c</sup>	15.4	4.9	3.7	24	1.2

Abbreviation: AACOM indicates American Association of Colleges of Osteopathic Medicine.

<sup>a</sup>Data source: AACOM.<sup>28</sup>

<sup>b</sup>Data source: AACOM.<sup>14</sup> Rounding of percentages to whole numbers started with the 2009–2010 report.

<sup>c</sup>Numbers of respondents are not available for the years 2008–2009 and 2007–2008.

**GME Realities for Osteopathic Students**

Past and current GME trends ensure that despite osteopathic students' interest in non–primary care specialties, the majority of DO graduates will become primary care practitioners. Osteopathic students encounter an osteopathic GME system that emphasizes primary care specialties and an ACGME system that welcomes them to its primary care and other less competitive programs

but offers them limited opportunities for selection into the most competitive residencies.

The COM graduating class of 2014 serves as an illustrative example (see Chart 1). In the 2014 AOA Match, 62% of all residency positions available to DO applicants were in primary care specialties.<sup>17</sup> Family medicine offered the most postgraduate year 1 (PGY-1) positions (n = 880), followed by internal

medicine (n = 609); emergency medicine came in a distant third (n = 270).

Consistent with AOA Match results in previous years, nearly all non–primary care positions were filled while many of the primary care positions were not: 361 (41%) of the 880 family medicine positions, 170 (28%) of the 609 internal medicine positions, and 9 (13%) of the 70 pediatrics positions remained vacant. In total, 540 (90%) of the 599 unfilled residency positions were in these three primary care disciplines.<sup>17</sup> Yet 679 DO applicants went unmatched in the 2014 AOA Match. Given the abundance of vacant primary care positions, it is more than likely that many of these unmatched applicants did not include a primary care specialty in their rank order list.

Chart 1

**DO Graduate Results in the 2014 AOA and NRMP Matches**

AOA Match <sup>a</sup>	No. (%)	NRMP Main Residency Match <sup>b</sup>	No. (%)
<b>Potential participants (n = 5,615)</b>		<b>DO applicants (n = 3,768)</b>	
2014 graduates	5,123 (91.2)	Withdrew	892 (23.7)
Previous graduates	492 (8.8)	No rank list submitted	138 (3.7)
Nonparticipants	2,625 (46.8)	<b>Active applicants (n = 2,738)</b>	
Matched participants <sup>c</sup>	2,341 (41.6)	Matched	2,127 (77.7)
Nonmatched participants	679 (12.0)	Unmatched	611 (22.3)
<b>Internship slots offered (n = 529)</b>			
Matches	204 (61.4)		
Vacant slots	325 (38.6)		
<b>Residency slots offered (n = 2,459)</b>			
Matches	1,860 (75.6)		
Vacant slots	599 (24.4)		

Abbreviations: DO indicates doctor of osteopathic medicine; AOA, American Osteopathic Association; NRMP, National Resident Matching Program.

<sup>a</sup>Data source: AOA Intern/Resident Registration Program.<sup>17</sup>

<sup>b</sup>Data source: National Resident Matching Program.<sup>18</sup>

<sup>c</sup>The number of matched participants includes 277 individuals who matched earlier into U.S. military graduate medical education positions through the military Match program.

Of the 2,738 DOs who participated in the 2014 NRMP Main Residency Match as active applicants, 2,127 (77.7%) were selected for a PGY-1 position and 611 (22.3%) did not match<sup>18</sup> (see Chart 1). In sum, 1,321 (62%) of the DOs who matched found positions in primary care programs,<sup>18</sup> for which, as noted above, there is less interest from and competition with U.S. MDs. Historically, DO applicants have found little success in selection for the more competitive ACGME residencies. In the 2014 NRMP Match, none of the 295 candidates chosen for otolaryngology residencies was a DO, 1 (0.1%) of the 695 candidates selected for orthopedic surgery residencies was a DO, 3 (1.5%) of 206 neurological surgery positions went to DOs, and 44 (3.7%) of the 1,205 candidates awarded categorical general surgery positions were DOs.<sup>18</sup>

What were the fates of the 679 unmatched applicants in the 2014 AOA Match and the 611 unmatched DO applicants in the 2014 NRMP Match? Because a DO can be a participant and be unsuccessful in both Matches, there is a good chance that the same individual can be counted twice. An unknown number of these individuals were unsuccessful in the AOA Match but successful in the NRMP Match. However, most of these unsuccessful applicants likely had few choices other than to seek one of the 540 primary care positions that were vacant in the AOA Match or to accept a traditional one-year osteopathic internship position and then attempt to secure a position in a desired specialty in the subsequent Match. It is generally understood in medical education circles that a traditional one-year osteopathic internship will improve a physician's clinical skills, but it does nothing to change his or her academic record or licensing board examination scores—credentials that weigh heavily in selection for competitive residencies.

### Impact of a Single GME Accreditation System on Osteopathic Students

In February 2014, the AOA and ACGME released a joint statement announcing the folding of AOA-approved programs into the ACGME accreditation system.<sup>19</sup> Starting July 1, 2015, existing AOA-approved programs will have five years to apply for and meet ACGME standards for continued accreditation. Osteopathic programs that apply for ACGME accreditation during this period will be assigned preaccreditation status that grants their DO residents eligibility to enter ACGME fellowship programs. In March 2014, the AACOM conducted an online survey of osteopathic medical students to gauge their opinions on the merger and received responses from 5,307 students (22.9% of all enrolled students). The results indicate that 55.1% of respondents strongly supported and another 27.4% supported the move.<sup>20</sup> In short, the merger is popular among osteopathic students.

How many positions and what specialties will the AOA bring to the ACGME system? One key fact to keep in mind is that the AOA GME system has a wide disparity in the numbers of approved, funded, and filled positions. For the 2013–2014

academic year, for example, the AOA reported having 1,228 approved traditional one-year osteopathic internship positions of which 628 (51%) were filled, and 11,535 approved residency and fellowship positions of which 7,582 (65.7%) were occupied.<sup>3</sup> For years, osteopathic training institutions have followed a pattern of requesting and receiving approval for more GME positions than they intend to fund. This surplus of unfunded positions helps explain why in 2013–2014 only 554 (68%) of the 809 approved slots in general surgery, 464 (77%) of the 590 approved positions in orthopedic surgery, and 919 (76%) of the 1,215 approved slots in emergency medicine were filled.<sup>3</sup> In the AOA Match, residency programs in these popular specialties consistently fill. They are highly desired by graduating seniors—and hospitals have the potential to fill all their approved but unfunded positions. It can be expected that in the ACGME accreditation system the pattern of requesting more GME positions than the hospital intends to fund will be less common.

As osteopathic training institutions begin the work toward accreditation unification, it will not be surprising if they eliminate GME programs that are a poor fit to the ACGME system, like traditional osteopathic internships, or that encounter significant obstacles in meeting ACGME standards, such as non–primary care programs at smaller community hospitals. Osteopathic hospitals will need to reassess program size in determining which of their residencies they want to carry over to the ACGME system. For example, in internal medicine, the minimum size for AOA-approved programs is 3 residents<sup>21</sup> compared with 15 enrolled and participating residents for ACGME programs.<sup>22</sup> The osteopathic profession has a significant number of internal medicine residencies that do not currently meet this ACGME standard. As of April 2015, the AOA reported it had 134 internal medicine residencies and listed the number of AOA-approved positions for 128 programs. Of these 128 programs, 52 (41%) had fewer than 15 approved positions.<sup>23</sup> This number does not include those programs that are approved for 15 or more slots but fund fewer than the ACGME minimum. If osteopathic training institutions with fewer than 15 funded and filled positions want to continue their internal

medicine residency programs and remain under their Medicare cap numbers, one of their few choices will be to close or reduce residency and/or fellowship positions in other programs. Because ACGME minimum program sizes across the board tend to be higher than AOA minimums, osteopathic training institutions are likely to be forced to sponsor a smaller number of programs with larger numbers of residents in the specialties considered of most value to the institutions. Community hospitals, which form the educational backbone of osteopathic GME, are best suited for providing primary care training and are less able to compete against academic medical centers and large hospitals for fellowship programs and residencies that require the provision of highly specialized care. Osteopathic students should be concerned that the GME unification process will result in a net loss of non–primary care programs and an increased number of primary care positions making the transition to the ACGME system.

Osteopathic student enthusiasm for a uniform GME accreditation system should also be tempered by current trends in demand for GME. An adequate supply of GME positions remains a concern. First-year enrollments at Liaison Committee on Medical Education–accredited medical schools for the 2019–2020 academic year are projected to be 21,304, representing a 29.2% increase over the 2002–2003 level.<sup>24</sup> A conservative estimate puts the entering COM class size in 2019 at 7,780 osteopathic students—a 162% increase from the 2002 first-year enrollment of 2,968 students.<sup>24</sup> However, between 2001 and 2010, the number of new residency positions—that is, those that can be entered directly from medical school or with a preliminary year—increased at a compound annual rate of 0.09%.<sup>25</sup> Assuming this pattern continues, the number of U.S. MD and DO applicants will eventually exceed the number of first-year positions available in the NRMP Match in ACGME and formerly AOA-approved programs. With slow growth in new GME positions and increases in medical school enrollment, competition for residency positions between U.S. MDs, DOs, and international medical graduates (IMGs) can be expected to intensify.

A unified GME accreditation system also brings its own set of potential issues

for osteopathic medicine. Apart from current AOA-ACGME dual-accredited programs (predominantly in primary care specialties), AOA-approved residencies and fellowships are exclusive to DO applicants. After these programs obtain ACGME accreditation, they will be open to U.S. MDs and IMGs as well. Osteopathic students should expect increased competition from these groups for non-primary care specialty programs that were previously open only to them. If past and current patterns hold for the future, the primary care programs the AOA brings to the ACGME system will draw little interest from U.S. MDs and will largely remain options for DOs—and for IMGs. And unless there is a radical change in the prevailing choices of the directors of ACGME programs in highly competitive specialties, DOs will continue to be concentrated in programs in primary care and other specialties deemed less competitive.<sup>26</sup>

### Looking Forward

The osteopathic profession has been consistent in its support of primary care medicine, but it has failed to generate a sufficient number of GME positions to keep pace with the dynamic growth in its student population caused by increased class sizes and new COMs, branch campuses, and remote teaching sites. It is not surprising that the majority of COM graduates will end up in primary care disciplines—this trend has been evident for decades. But, as AACOM survey results<sup>14</sup> show, students entering and graduating from COMs do so with an expectation that they will have a great amount of control over their eventual career choices, and primary care is not high on many of their lists. Some osteopathic students will indeed be successful in obtaining their first choice of a non-primary care residency, chiefly as a result of their academic performance and other achievements. Many others, however, will face limited non-primary care residency opportunities. After GME accreditation unification, osteopathic students can also expect increased competition from U.S. MDs for the fewer positions available in former AOA-approved non-primary care programs. Even though roughly two-thirds of graduating seniors have demonstrated interest in a non-primary care specialty, the law of supply and demand dictates that only one-third of COM graduates

will obtain a position in their preferred non-primary care choice.

For the foreseeable future, the osteopathic profession can continue to report that a majority of DOs train in primary care specialties, regardless of whether they do so in AOA-approved or ACGME programs. Beneath the statistical validity of this statement, however, are several questions that need to be asked. How many DOs will come to accept having missed out on their first choice—and possibly their second choice—of a specialty and having to train in an alternate discipline? Does this situation have an impact on their level of career satisfaction? After GME accreditation unification, will the osteopathic profession speak up if its graduates lack opportunities for placement in competitive non-primary care specialties? Or will the osteopathic profession be content to see DOs remain predominately in primary care?

Although these questions do not yet have answers, there are certain things that are known. Recent evidence shows that majorities of entering and of graduating osteopathic students are not interested in primary care careers. The new Pathway model<sup>13</sup> is therefore pointing the osteopathic profession in a direction that is the opposite of the expressed specialty interests and career aspirations of its student population. The osteopathic GME system has a decided emphasis on primary care, and osteopathic training institutions will likely bring their primary care programs into the ACGME system as part of GME unification at the expense of non-primary care specialty and fellowship programs. In those non-primary care specialty programs that osteopathic institutions retain, DO applicants will face increased competition for positions once open only to them. Unless residency program directors become more receptive to selecting DO applicants for competitive ACGME programs, DOs will continue to be relegated to specialties deemed less desired by U.S. MDs. The confluence of these various trends ensures that the osteopathic profession will continue its close identity with primary care into the future, but it may do so primarily because of the lack of alternative GME choices available to its medical students.

*Acknowledgments:* The author would like to acknowledge the prepublication comments and support of Donald Sefcik, DO, MBA, Jon

Rohrer, PhD, DMin, Thomas Gentile, and Marion Cummings, PhD. The author would also like to thank Jennifer Campi for her editorial expertise.

*Funding/Support:* None reported.

*Other disclosures:* None reported.

*Ethical approval:* Reported as not applicable.

### References

- 1 Gevitz N. The DOs: Osteopathic Medicine in America. Baltimore, Md: Johns Hopkins University Press; 2004.
- 2 American Association of Colleges of Osteopathic Medicine. AACOM Reports: U.S. Osteopathic Medical Schools by Year of Inaugural Class. <http://www.aacom.org/docs/default-source/data-and-trends/USCOMbyInaugclass.pdf?sfvrsn=8>. Accessed May 19, 2015.
- 3 Martinez B, Biszewski M. Osteopathic graduate medical education 2015. *J Am Osteopath Assoc*. 2015;115:268–274.
- 4 Shannon S. A decade of growth in osteopathic medical education. *Inside OME*. 2015;9(6). <http://www.aacom.org/news-and-events/publications/iome/2015/june-2015/president>. Accessed July 4, 2015.
- 5 American Association of Colleges of Osteopathic Medicine. What is osteopathic medicine? Osteopathic medicine and medical education in brief. <http://www.aacom.org/become-a-doctor/about-om>. Accessed May 19, 2015.
- 6 William Carey University. College of Osteopathic Medicine. <http://www.wmcarey.edu/com>. Accessed May 19, 2015.
- 7 PR Newswire. New medical school breaks ground in Colorado [press release]. [www.prnewswire.com/news-releases/new-medical-school-breaks-ground-in-colorado-51619917.html](http://www.prnewswire.com/news-releases/new-medical-school-breaks-ground-in-colorado-51619917.html). Accessed May 19, 2015.
- 8 Largen S. Edward Via Medical College welcomes first class. *GoUpstate.com*. August 8, 2011. <http://www.goupstate.com/article/20110808/ARTICLES/108091004>. Accessed May 19, 2015.
- 9 Wire Eagle, Auburn University. Medical college to build campus in Auburn Research Park. <http://wireeagle.auburn.edu/news/4522>. Published August 30, 2012. Accessed May 19, 2015.
- 10 Campbell University Alumni Association. Jerry M. Wallace School of Osteopathic Medicine. <http://alumni.campbell.edu/s/881/index.aspx?=&gid=19&pgid=1783>. Accessed May 19, 2015.
- 11 Cline C. Marian University preparing for new medical school. *WTHR.com*. April 18, 2013. [www.wthr.com/story/22018698/marian-university-preparing-for-new-medical-school](http://www.wthr.com/story/22018698/marian-university-preparing-for-new-medical-school). Accessed May 19, 2015.
- 12 Busby R. Two new med schools. *Business Alabama*. May 2013. [www.businessalabama.com/Business-Alabama/May-2013/Two-New-Med-Schools/](http://www.businessalabama.com/Business-Alabama/May-2013/Two-New-Med-Schools/). Accessed May 19, 2015.
- 13 Shannon SC, Buser BR, Hahn MB, et al. A new pathway for medical education. *Health Aff (Millwood)*. 2013;32:1899–1905.
- 14 American Association of Colleges of Osteopathic Medicine. AACOM reports: Entering and graduating class surveys.

- <http://www.aacom.org/reports-programs-initiatives/aacom-reports/entering-and-graduating-class-surveys>. Accessed March 17, 2015.
- 15 American Academy of Family Physicians. 2015 Match results for family medicine. [www.aafp.org/medical-school-residency-program-directors/nrmp.html](http://www.aafp.org/medical-school-residency-program-directors/nrmp.html). Accessed May 19, 2015.
  - 16 Brotherton SE, Etzel SI. Graduate medical education, 2012–2013. *JAMA*. 2013;310:2328–2346.
  - 17 AOA Intern/Resident Registration Program. Summary of positions offered and filled by program type: Results of the 2014 Match. <https://natmatch.com/aoairp/stats/2014prgstats.html>. Accessed May 19, 2015.
  - 18 National Resident Matching Program. Table 2: Matches by specialty and applicant type; Table 4: Applicants in the matching program, 2010–2014. In: Results and Data: 2014 Main Residency Match. <http://www.nrmp.org/wp-content/uploads/2014/04/Main-Match-Results-and-Data-2014.pdf>. Accessed May 19, 2015.
  - 19 Accreditation Council for Graduate Medical Education. Single GME accreditation system. <http://www.acgme.org/acgmeweb/tabid/445/GraduateMedicalEducation/SingleAccreditationSystemforAOA-ApprovedPrograms.aspx>. Accessed May 19, 2015.
  - 20 American Association of Colleges of Osteopathic Medicine. Report on survey of osteopathic medical students' views on unified GME accreditation. [http://www.aacom.org/docs/default-source/news/gme-merger-survey-report\\_3-25-14.pdf?sfvrsn=2](http://www.aacom.org/docs/default-source/news/gme-merger-survey-report_3-25-14.pdf?sfvrsn=2). Accessed May 19, 2015.
  - 21 American Osteopathic Association. Section V.5.6.a. In: The Basic Documents for Postdoctoral Training. Effective July 1, 2014. [www.osteopathic.org/inside-aoa/accreditation/postdoctoral-training-approval/postdoctoral-training-standards/Documents/aoa-basic-document-for-postdoctoral-training.pdf](http://www.osteopathic.org/inside-aoa/accreditation/postdoctoral-training-approval/postdoctoral-training-standards/Documents/aoa-basic-document-for-postdoctoral-training.pdf). Accessed May 19, 2015.
  - 22 Accreditation Council for Graduate Medical Education. III.B.2. In: ACGME Program Requirements for Graduate Medical Education in Internal Medicine. [https://www.acgme.org/acgmeweb/Portals/0/PFAssets/2013-PR-FAQ-PIF/140\\_internal\\_medicine\\_07012013.pdf](https://www.acgme.org/acgmeweb/Portals/0/PFAssets/2013-PR-FAQ-PIF/140_internal_medicine_07012013.pdf). Accessed May 19, 2015.
  - 23 American Osteopathic Association. Opportunities. Internal medicine [data gathered from search and review of individual program listings]. <http://opportunities.osteopathic.org/search/search.cfm>. Accessed May 19, 2015.
  - 24 Center for Workforce Studies. Results of the 2014 Medical School Enrollment Survey: Current Enrollment and Projected Trends in the Next Five Years. Washington, DC: Association of American Medical Colleges; 2015. <https://members.aamc.org/eweb/upload/Results%20of%20the%202014%20Medical%20School%20Enrollment%20Survey.pdf>. Accessed May 19, 2015.
  - 25 Jolly P, Erikson C, Garrison G. U.S. graduate medical education and physician specialty choice. *Acad Med*. 2013;88:468–474.
  - 26 National Resident Matching Program. Figure 1: All specialties. Percentage of programs citing each factor and mean importance rating for each factor in selecting applicants to interview; Figure 4: All specialties. Percent of programs that use USMLE Step 2 Clinical Skills (CS), Step 3, and COMLEX-USA scores when considering which applicants to interview. In: Results of the 2014 NRMP Program Director Survey. June 2014. <http://www.nrmp.org/wp-content/uploads/2014/09/PD-Survey-Report-2014.pdf>. Accessed May 19, 2015.

#### References cited in tables only

- 27 American Association of Colleges of Osteopathic Medicine. AACOM reports on student enrollment: First-year enrollment by gender, 1968–2015. <http://www.aacom.org/reports-programs-initiatives/aacom-reports/student-enrollment>. Accessed May 22, 2015
- 28 American Association of Colleges of Osteopathic Medicine. AACOM reports on graduates: Graduates by gender, 1969–2014. <http://www.aacom.org/reports-programs-initiatives/aacom-reports/graduates>. Accessed May 19, 2015.