Graduates of osteopathic medical schools have several options when considering postdoctoral training programs. In addition to traditional programs approved by the American Osteopathic Association or those accredited by the Accreditation Council for Graduate Medical Education, students can train in programs accredited by both institutions (ie, dual programs) or osteopathic programs that occur side-by-side with allopathic programs (ie, parallel programs). In the present article, we report on the availability and growth of these two training options and describe their benefits and drawbacks for trainees as well as for the osteopathic medical profession as a whole.

In 1985, the American Osteopathic Association (AOA) Board of Trustees agreed to permit osteopathic postdoctoral training programs to occur in the same settings as programs accredited by the Accreditation Council for Graduate Medical Education (ACGME).\(^1,2\) This decision was a result of the rapid increase in the number of colleges of osteopathic medicine (COMs) and the consolidation of the hospital market, which led to the closure of many osteopathic hospitals in the 1990s.\(^3\)

Over time, two distinct models of interaction between AOA and ACGME training programs have evolved. These models—or, more accurately, relationships—are defined as “dual” and “parallel.” Today, osteopathic medical students have various options available to complete postdoctoral training: traditional AOA-approved training programs, AOA/ACGME dual programs, AOA-approved parallel programs, military training, or ACGME programs not affiliated with the AOA.

The osteopathic medical profession, including its leaders, students, faculty, COMs, trainees, and training programs must understand the role of dual and parallel programs in osteopathic medical education because involvement from all aspects of the profession will determine the fate of these programs.

**Definitions of Dual and Parallel Programs**

In 2006, definitions of dual and parallel programs were added to the Accreditation Document for Osteopathic Postdoctoral Training Institutions and the Basic Document for Osteopathic Postdoctoral Training glossary of terms, as follows:

- **Dual program**—An AOA program in which an osteopathic trainee is registered in a residency program that is accredited by both the AOA and ACGME. The osteopathic trainee receives both AOA and ACGME credit.

- **Parallel program**—An AOA-approved program which is conducted side-by-side with an ACGME program in the same specialty and institution, but both programs and trainees in each are separately approved and registered by the AOA or ACGME; osteopathic trainees only receive AOA credit.

A key difference between dual and parallel residency programs is that trainees who complete dual programs have the option to become board certified by the AOA, the American Board of Medical Specialties (ABMS), or both, while trainees who complete parallel programs are eligible to become AOA board certified only.

Other differences exist in how the training programs are structured. Trainees in dual and parallel residency programs must follow guidelines and requirements identified by the AOA.\(^4\) In dual programs, osteopathic residents are fully integrated in training with allopathic residents. Parallel programs can be fully integrated (similar to dual programs) or may operate partially or completely independent of the allopathic program. The trainees may work side-by-side with their allopathic counterparts, but they have their own didactic programs, different rotations, and fewer interactions with allopathic residents and faculty within the hospital.

The statistics provided for dual and parallel programs in...
most of the nonactive programs had been newly approved and would become active the next academic year. Many osteopathic medical specialties have approved dual programs, as listed in Table 1. Few specialties (ie, forensic pathology, preventive medicine and public health, and general surgery) offer only parallel programs, as described in the next section.

Family practice sought approval for the greatest number of dual programs and positions (90 and 1011, respectively) followed by internal medicine (26 and 321) and pediatrics (14 and 186).

The number of dual programs has had the most rapid growth during the past 10 years (Table 2). Before 2000, a total of 36 dual programs were established. From 1990 to 1999, an additional 30 new dual programs were approved, averaging 3 new programs per year. From 2000 to 2008, 119 new dual programs were approved, averaging 13 per year. Therefore, 77% of all new dual programs were developed and approved during the past 9 years.

Dual programs have been advantageous to both the AOA and the ACGME. Primary care ACGME programs, particularly family medicine, have not been successfully filling with allopathic seniors from US allopathic medical schools. In 2008, the National Resident Matching Program (NRMP) reported

the following sections are based primarily on data provided through the AOA Trainee Information, Verification, and Registration Audit (TIVRA) reporting system. As stated elsewhere, data on programs, number of trainees, and approved positions may change throughout the year as a result of decisions and actions of the AOA Council on Osteopathic Postdoctoral Training and the Program and Trainee Review Council.

Statistics on Dual Programs
There has been unprecedented growth during the past 3 years in the number of ACGME training programs seeking dual AOA/ACGME programs and positions. For the 2008-2009 academic year, as of December 2008, there are 150 approved dual programs with 1716 approved positions. Of the 150 programs, 146 are actively training DO residents with 1692 active positions (ie, trainees are or were training in the program). The number of filled positions in 2009 are not yet available.

By contrast, there were only 90 approved training programs in the 2005-2006 academic year, of which only 57 were active (Table 1). Of the 936 approved positions in the 2005-2006 academic year, 649 approved positions were in active programs, but only 272 training slots were filled with osteopathic trainees. However, in the 2005-2006 academic year, most of the nonactive programs had been newly approved and would become active the next academic year.

Many osteopathic medical specialties have approved dual programs, as listed in Table 1. Few specialties (ie, forensic pathology, preventive medicine and public health, and general surgery) offer only parallel programs, as described in the next section.

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<table>
<thead>
<tr>
<th>Specialty</th>
<th>Programs</th>
<th>Positions</th>
<th>Programs</th>
<th>Positions</th>
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<tbody>
<tr>
<td></td>
<td>Approved</td>
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<td>Approved</td>
<td>Active</td>
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<td>3</td>
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<td>Family Practice</td>
<td>47</td>
<td>30</td>
<td>90</td>
<td>89</td>
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<td>Internal Medicine</td>
<td>16</td>
<td>7</td>
<td>26</td>
<td>25</td>
</tr>
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<td>Internal Medicine/Pediatrics</td>
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<td>Occupational/Environmental Medicine</td>
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<tr>
<td>Palliative Medicine</td>
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<td>0</td>
<td>1</td>
<td>1</td>
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<td>Pediatrics</td>
<td>12</td>
<td>8</td>
<td>14</td>
<td>13</td>
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<tr>
<td>Physical Medicine and Rehabilitation</td>
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<td>2</td>
<td>2</td>
<td>2</td>
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<td>Psychiatry</td>
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<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Sports Medicine</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>90</td>
<td>57†</td>
<td>936</td>
<td>649</td>
</tr>
</tbody>
</table>

Table 1
Dual Postdoctoral Training Programs: Comparison of No. of Dual Programs and DO Positions by Academic Year and Status*

* Data are current as of December 2008.
† Many of the nonactive programs in the 2005-2006 academic year had been newly approved and became active the following academic year.

Abbreviation: DO, osteopathic physician.
Source: American Osteopathic Association Trainee Information, Verification, and Registration Audit system.
that 90.6% of ACGME family medicine training positions had filled through the NRMP Match, but only 44% of the available positions were filled with current US allopathic medical school graduates. The remaining 47% of the positions filled with international medical graduates (IMGs) that were non-US citizens (19%), IMGs that were US citizens (15%), osteopathic medical students (10%), and previous allopathic graduates (3%). The remaining 9% of available positions may have matched through post-Match activity, but these data are not published.

Another percentage of osteopathic medical graduates and IMGs have entered ACGME programs by signing contracts outside of the NRMP Match. This practice is prohibited by both the AOA and ACGME for their own graduates, yet the NRMP has defended its position to allow osteopathic and IMG students to continue signing such contracts (NRMP, written communication, May 2006).

Dual programs are attractive to many osteopathic medical students. A 2005 survey-based study reported that senior osteopathic medical students who preferred dual accreditation did so because such programs “would allow board certification by ABMS-recognized boards” (43%), “would offer better educational opportunities” (39%), and “would offer more specialties” (34%). There is no empirical data or research to demonstrate that the quality of ACGME programs is better, but because more ACGME programs exist, there is greater access to specialties that are unfilled.

**Statistics on Parallel Programs**

The first parallel program was introduced in 1958. However, parallel programs did not gain ground until the 1990s, when the growth of parallel programs built gradually from 1996 through 2005. Since then, only 1 new program has opened (Table 3).

In 2006, there were 19 approved parallel training programs with 149 approved positions. Of these programs, only 11 were active with 42 trainees at that time. By comparison, in 2009 there are only 5 programs with 37 approved positions. However, only 3 of these parallel programs are active with 19 trainees.

Family practice and internal medicine had the highest number of positions (29 each) in parallel programs in 2006. Obstetrics and gynecology had 18 positions, followed by orthopaedic surgery with 16 positions. Today, there are only 12 parallel positions in family practice, 11 in internal medicine, 10 in general surgery, 3 in preventative medicine and public health, and 1 in forensic pathology. Obstetrics and gynecology and orthopaedic surgery have no parallel positions in 2009.

Many parallel programs have closed as a result of financial considerations, while others became dual programs. Clearly, parallel programs are not gaining popularity with students or institutions.

**Fill Rates for Dual Programs**

Compared with specialties’ traditional training programs in the 2007-2008 academic year, fill rates are higher in dual programs.
The osteopathic medical profession hopes physicians who complete AOA/ACGME dual training will elect to maintain their connection to the profession by becoming board certified by the AOA or the ABMS. However, only 39% of trainees who have completed training in internal medicine dual programs are AOA board certified at this time. The American College of Osteopathic Family Physicians has a similar requirement in which 90% of trainees in each program must take the certifying exam within 5 years of training completion. Alternatively, DOs who elected dual programs over independent ACGME programs may have done so because they were committed to the osteopathic medical profession in the first place, therefore choosing AOA certification over (or in addition to) ABMS certification.

In addition, internal medicine, one of the more “popular” specialties, requires 80% of graduates (averaged for 3 years) in each AOA-approved program to take the certifying examination of the American Osteopathic Board of Internal Medicine. However, only 39% of trainees who have completed training in internal medicine dual programs are AOA board certified at this time. The American College of Osteopathic Family Physicians has a similar requirement in which 90% of trainees in each program must take the certifying examination within 5 years of training completion.

The various aspects of DOs who complete dual programs will continue to be monitored. It will be particularly important to find if physicians who initially become board certified by both the AOA and the ABMS will elect to recertify in one or both. More information will become available after recertification data become available on DOs who have completed dual training. In the meantime, AOA membership among DOs who complete dual programs and elect ABMS board certification have not been surveyed yet, such a study could provide meaningful information on the various reasons DOs elect AOA board certification when it is an option. Certainly, AOA certification has advantages. For example, DOs from dual training programs may elect AOA board certification if they plan to become osteopathic program directors, who are required to be AOA board certified. Alternatively, DOs who elected dual programs over independent ACGME programs may have done so because they were committed to the osteopathic medical profession in the first place, therefore choosing AOA certification over (or in addition to) ABMS certification.

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cation only can provide preliminary data. As of December 2008, 92 (35%) of the 261 DOs who are only ABMS board certified in their primary specialty are AOA members. In addition, of the 66 DOs who have not yet sat for board certification, 49 (74%) are AOA members (Table 6).

### Funding

The cost of most hospital residency training has been funded through the US Centers for Medicare and Medicaid Services (CMS). One of the many provisions of the Balanced Budget Act of 1997 to reduce government spending was placing “caps” on the number of funded positions in hospitals or institutions with existing residency programs. Training positions—or slots—for AOA/ACGME dual programs were primarily carved out of existing ACGME accredited program positions originally slotted for allopathic residents.

Hospitals have the flexibility to move slots between specialties and back and forth between the AOA Match and the NRMP. That is, if slots do not fill through the AOA Match, they can be transferred back to the NRMP for allopathic or osteopathic participants. Hospitals or institutions in which no programs exist or those in underserved rural or urban communities can be awarded new funded slots from the CMS. There has been one effort by the CMS to reallocate funded positions to hospitals with demonstrated needs. At present, CMS funding is difficult to obtain, but with physician workforce shortages predicted as early as 2015, many influential groups have asked the CMS to reconsider its position.

### Advantages for Trainees

As previously described, osteopathic medical students believe the option of becoming board certified in their specialty by the AOA, ABMS, or both is a distinct advantage in selecting dual residency programs. In addition, the quality of ACGME training programs is perceived to be higher by many students and other members of the osteopathic medical profession. Osteopathic trainees may believe that in training with allopathic physicians, they will gain a higher level of acceptance by allopathic peers and patients. However, in reality, no evidence exists that ACGME training programs are higher quality. In fact, the AOA has similar processes and systems to the ACGME to ensure the quality of training programs. In addition, patients rarely know where their physicians completed training.

### Table 4

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Dual Approved</th>
<th>Dual Filled, No. (%)</th>
<th>AOA Only Approved</th>
<th>AOA Only Filled, No. (%)</th>
<th>Total Approved</th>
<th>Total Filled, No. (%)</th>
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<tr>
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<td>8</td>
<td>4 (50)</td>
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<td>37 (56.1)</td>
<td>719</td>
<td>476 (66.2)</td>
<td>785</td>
<td>513 (65.4)</td>
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<td>14 (33.3)</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>487 (37.0)</strong></td>
<td><strong>3103</strong></td>
<td><strong>1369 (44.1)</strong></td>
<td><strong>4420</strong></td>
<td><strong>1856 (42.0)</strong></td>
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* Data are accurate as of May 2008. Data are reported by the residency programs to the American Osteopathic Association’s Division of Postdoctoral Training through the AOA’s Trainee Information, Verification, and Registration Audit system. Current data for the 2007-2008 academic year are to be considered incomplete and will be finalized in the JAOA’s 2010 Medical Education issue.

† Palliative medicine was approved by the AOA on July 31, 2008, and is therefore not applicable for the 2007-2008 academic year.

‡ Data for AOA-only positions does not include the many specialties that do not have positions available in dual programs. For a complete list of AOA residency positions, see “Osteopathic graduate medical education,” which begins on page 135.

Source: American Osteopathic Association (AOA) Trainee Information, Verification, and Registration Audit system.
are two pathways that provide opportunities for ACGME-trained, ABMS–board certified DOs to become eligible for AOA board certification. Resolution 56 (A/2004), Certification of ABMS–Board Certified DOs, is available to DOs who finished residency at least 5 years before application. Approximately 200 DOs have applied for certification through Resolution 56 in the past 4 years.

Advantages and Disadvantages for the Profession

When graduating DOs demonstrated they were well prepared to enter ACGME residencies, allopathic training programs began aggressively—and successfully—recruiting osteopathic medical graduates, particularly in primary care. With the planned 30% increase in enrollment at US allopathic medical schools, causing an additional 5000 student enrollment by 2015,21 the osteopathic medical students these programs have welcomed may be maintaining the CMS capped positions for ACGME programs.

There is some uncertainty regarding how open these programs will be to DOs when US allopathic medical students need positions currently occupied by osteopathic trainees. If this situation occurs, the osteopathic medical profession will need to be prepared for the influx of students that will turn to AOA programs. The Medical Education Summits, which were held in 2006 and 2007 and were co-sponsored by the AOA and American Association of Colleges of Osteopathic Medicine,

Although it may not be an issue to students during recruitment, an AOA-approved internship is required for DO licensure in five states: Florida, Michigan, Oklahoma, Pennsylvania, and West Virginia. Therefore, graduates will be eligible for licensure if they train in traditional, dual, or parallel AOA-approved training programs.

As of January 2009, 41% of all dual programs are located in these five states. While this percentage may seem high, 49% of all AOA-approved residency programs are also located in these five states. Pennsylvania has the greatest number of dual programs (19%), followed by Michigan (13%), New York (12%), and Illinois (9%).

Graduates of osteopathic medical schools who think they will never be interested in working in any of these states should be aware that more than 2000 graduates have sought approval for ACGME training as an AOA-approved internship through Resolution 42 (A/2000, Approval of ACGME Training as an AOA-Approved Internship). This option is currently the only pathway available to DOs who completed ACGME training programs to become eligible for licensure in those five states. Trainees who complete dual and parallel programs are never limited to where they can practice in the United States throughout their professional careers.

To hold osteopathic leadership positions (eg, COM deans, directors of medical education, program directors), DOs are required to be AOA board certified.4,20 Resolutions 42 and 56 are two pathways that provide opportunities for ACGME-trained, ABMS–board certified DOs to become eligible for AOA board certification. Resolution 56 (A/2004), Certification of ABMS–Board Certified DOs, is available to DOs who finished residency at least 5 years before application. Approximately 200 DOs have applied for certification through Resolution 56 in the past 4 years.

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have been addressing this issue in combination with other workforce concerns.22

In the meantime, the osteopathic medical profession has gained a substantial number of CMS-capped training slots through the development of dual and parallel programs. Though the slots are flexible and can be either AOA or ACGME designated slots, AOA positions would have suffered a greater loss if they had not become available at all. Maintaining these osteopathic slots may be challenging if dual programs decide to regain these training positions for US allopathic graduates.

Many osteopathic leaders believe that osteopathic postdoctoral training is superior to ACGME training for osteopathic medical graduates because they receive continued training and education in osteopathic principles and practices.23 Dual and parallel programs provide DOs with the opportunity to continue this training and enjoy the advantages they perceive are available from training in recognized AOA/ACGME programs. So far, based on the success of dual programs, it appears to be a winning solution for the profession and many graduates.

Completion of a parallel program would ensure that trainees continued in the osteopathic medical profession throughout their career. Although AOA board specialties would likely prefer greater development of parallel programs leading exclusively to AOA board eligibility, it appears efforts to develop parallel programs are not going to be a strategy for most institutions, as evidenced by the reduced number of parallel programs in recent years.

AOA board specialties depend on recruiting new graduates to maintain viability for the specialty. Physicians in each osteopathic specialty volunteer their time to create curricula for the specialty, teach students and trainees, participate in certification examination development, and hold leadership positions in the profession representing the specialty. There are many ACGME-trained osteopathic physicians who contribute to the profession in osteopathic leadership positions. Osteopathic physicians who trained in ACGME programs may apply through Resolution 42 or 56 to become eligible for AOA board certification, which is required to be a program director. AOA/ACGME programs can fill their AOA-approved slots and then attain additional DOs through the NRMP Match. Although the program is dually accredited, it does not necessarily mean the DOs are in approved positions and eligible for AOA board certification at the end of training. This can be confusing to DOs in ACGME slots who complete dual programs in allopathic US seniors, many might cancel their AOA-approved slots.

Conclusion

While dual programs have benefited the osteopathic medical profession, reliance on the continuation of dual positions could present a risk. If a substantial number of dual programs and positions close to DOs, the profession must be prepared with enough residency training opportunities for its graduates. This would be easier to achieve if CMS funding would become

<table>
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<th>Specialty†</th>
<th>AOA Membership</th>
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<td>Sports Medicine</td>
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<tr>
<td>Total</td>
<td>66</td>
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</tbody>
</table>

* Data are current as of December 2008.
† Although the specialties occupational/environmental medicine, palliative medicine, and child psychiatry have dual postdoctoral training programs, no osteopathic physicians (DOs) had completed the programs as of July 2008. In addition, all DOs who completed dual programs in internal medicine/pediatrics and obstetrics and gynecology became board certified by the American Osteopathic Association (AOA) or the American Board of Medical Specialties.

Source: American Osteopathic Association Trainee Information, Verification, and Registration Audit system.
easier to attain. Both the osteopathic and allopathic professions are encouraging CMS to lift caps on funded slots to ensure there will be a sufficient number of physicians in the workforce to provide quality care to patients (Carlo J. DiMarco, written communication, March 2009).14,15,25

References