

# The Challenges for Physicians of Demonstrating Continuing Competence in the Changing World of Medical Regulation: Osteopathic Pediatrician Case Report

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**ABSTRACT:** The current system of continuing medical education, maintenance of certification, and renewal of medical licenses can be quite burdensome and inefficient for all practicing physicians: medical doctors (M.D.s) and doctors of osteopathic medicine (D.O.s). D.O.s have opportunities for residency training and specialty certification which are not available to M.D.s. Not only are D.O.s required to satisfy unique educational requirements for state licensure which vary across jurisdictions, but they must also satisfy specialty board certification requirements which may or may not be recognized by the jurisdiction in which they practice.

The purpose of this article is to identify the challenges for D.O.s, specializing in pediatrics in this case, in efficiently fulfilling requirements of state medical and osteopathic boards for licensure, as well as for specialty board certification. While initiatives in demonstration of continued fitness for practice are sometimes looked upon with concern by physicians, there is the potential that alignment of maintenance of certification, osteopathic continuous certification, and maintenance of licensure could actually reduce the inefficiencies and redundancies of the current regulation system. Barriers to practice should be avoided, while at the same time honoring the profession's responsibility to ensure that those who are caring for patients remain competent to do so.

**Keywords:** Osteopathic physician (D.O.), Licensure, Certification, Pediatrics, Maintenance of Certification (MOC), Maintenance of Licensure (MOL), Osteopathic Continuous Certification (OCC), Continuing Medical Education (CME)

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## Introduction

Doctors of osteopathic medicine (D.O.s) are eligible for medical licensure in all 50 states and other jurisdictions.<sup>1,2</sup> There are currently 58,329 D.O.s with active medical licenses, representing 7 percent of all physicians licensed in the United States.<sup>3</sup> They are subject to equivalent standards as M.D.s for obtaining and maintaining medical licensure and also for specialty board certification. Osteopathic pediatricians, like D.O.s in other specialties, have options for postgraduate medical education training, initial board specialty certification, and ongoing specialty board certification (Figure 1). Each pathway requires adherence to specific requirements, and with these options comes an element of redundancy and complexity. D.O.s must satisfy requirements for state licensure which vary across jurisdictions, while satisfying specific specialty board certification requirements which may not necessarily be recognized by the jurisdiction in which they practice. The challenge becomes how

do osteopathic physicians, specializing in pediatrics in this case, efficiently fulfill requirements for state medical and osteopathic boards licensure, as well as for specialty board certification? The purpose of this article is to clarify the pathways by which D.O. pediatricians can be trained, certified, and licensed; identify demographic information of D.O. pediatricians,

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including the type of specialty board certification and jurisdiction of practice; and explore strategies for addressing the unique needs of satisfying both specialty board and state licensure requirements of D.O. pediatricians.

## GME Training

After graduating from an accredited college of osteopathic medicine (COM), osteopathic students have the opportunity to pursue graduate medical education (GME) training in programs that are accredited by the Accreditation Council for Graduate Medical Education (ACGME), American Osteopathic Association's Bureau of Osteopathic Specialists (AOA BOS), or both.<sup>4,6</sup> Among all disciplines, 45 percent of osteopathic medical school graduates were enrolled in AOA-accredited programs for the 2009–10 academic year.<sup>4</sup> For pediatric residency training, currently 15 of 17 AOA-accredited programs are also accredited by the ACGME.<sup>6,7</sup> These dually-accredited programs satisfy both ACGME and AOA requirements, so those D.O. trainees have the option of pursuing certification by the American Osteopathic Board of Pediatrics (AOBP), American Board of Pediatrics (ABP) or both.<sup>6</sup>

In 2009, 691 D.O.s were enrolled in ACGME-accredited pediatric training programs, representing 8.5 percent of all trainees in ACGME pediatric programs.<sup>8</sup> For the 2009–10 academic year, discrepancies between different sources makes it challenging to determine the precise number of residents enrolled in AOA-accredited pediatric residencies. Freeman reports 140 pediatric residents were enrolled within the 17 AOA-accredited programs;<sup>4</sup> Burkhart reports 206 pediatric residents were enrolled within 15 dually-accredited residency training programs.<sup>6</sup> Since 15 of the 17 AOA accredited programs were dually certified in 2009–10, presumably a majority of these 140–206 D.O.s would be included in the count for ACGME programs as well. These numbers illustrate that a majority of D.O. pediatricians pursue residency training programs specifically accredited by the ACGME and not the AOA.

## Initial Specialty Board Certification

Osteopathic trainees are eligible to pursue specialty board certification depending on the type of residency they complete (Figure 1). Selecting which specialty board certification to pursue may also depend on factors such as providing flexibility in making future career decisions, desire to become an osteopathic program director or dean, verification of competency in osteopathic principles, or dedication to the osteopathic medical profession.<sup>6</sup>

### ABP Certification

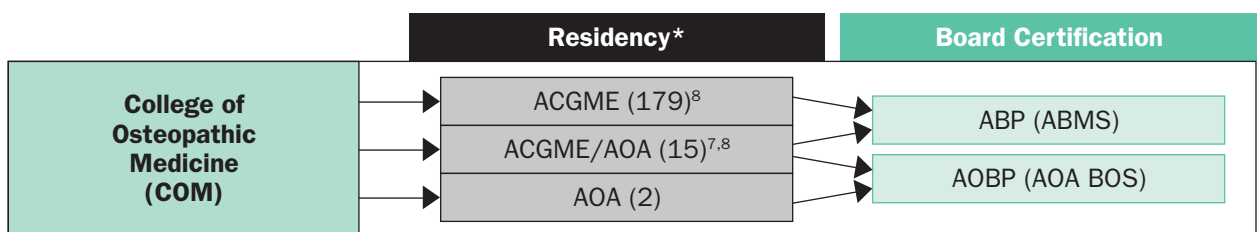
Given that a majority of D.O.s complete ACGME-accredited training programs, most D.O. pediatricians pursue primary specialty certification through the ABP.<sup>4,8</sup> As of December 31, 2010, there were 52,021 ABP board-certified pediatricians with active/time-limited certificates and 37,531 ABP board certified pediatricians with permanent certificates, totaling 89,552 with active certificates.<sup>9</sup> In the ABP's publication, *Workforce Data 2010–11*, demographic information regarding certificate holders is provided for age, gender, American Medical Graduate (AMG), and International Medical Graduate (IMG), and state in which certificate holders practice.<sup>9</sup> Specific demographic information regarding the percentage of D.O.s is not presented. To be eligible for taking the initial ABP certifying examination for general pediatrics, examinees must have completed the standard length of ACGME training (traditionally three years).<sup>10</sup>

### AOBP Certification

A number of D.O.s completing AOA-accredited or dually-accredited (ACGME/AOA) programs pursue primary specialty certification through the AOBP,<sup>5</sup> which is one of 18 specialty boards of the AOA's

Figure 1

## Graduate Medical Education and Board Certification Pathways for Osteopathic Pediatricians



**Abbreviations:** ACGME: Accreditation Council for Graduate Medical Education; AOA: American Osteopathic Association; ABP: American Board of Pediatrics; AOBP: American Osteopathic Board of Pediatrics; ABMS: American Board of Medical Specialties; AOA BOS: American Osteopathic Association Bureau of Osteopathic Specialists.

\*196 total ACGME-sponsored residency programs, 15 are dually accredited by the ACGME and AOA.

Bureau of Osteopathic Specialties (BOS).<sup>11</sup> In 2010, 37 residents took the AOBP General Pediatrics Certification Exam, and as of December 31, 2010, 430 D.O. pediatricians had active AOBP specialty board certificates.<sup>11</sup> Demographic data (including age, gender, and state in which the physician practices) is not published. To be eligible for taking the initial AOBP certification examination for general pediatrics, applicants must have graduated from an AOA-accredited COM and completed three years of AOA-approved training in pediatrics.<sup>5</sup>

D.O.s may also apply for AOA-approval for ACGME-accredited internships and residency training.<sup>12</sup> Applicants must demonstrate good standing within the AOA, complete the application form, and submit program director training verification.<sup>12</sup> Once

**THE COMPLEXITY AND CHALLENGES CONFRONTED BY EACH D.O. PEDIATRICIAN DEPENDS ON NUMEROUS PRATICE VARIABLES.**

approved, these ACGME-trained D.O. pediatricians have the same privileges as those who trained in AOA-accredited residencies and are eligible to take the AOBP certifying examination.

**ABP and AOBP Certification**

Physicians who complete dually-accredited residencies (ACGME/AOA) or receive AOA-approval for ACGME training are eligible to take both AOBP and ABP specialty examinations. Previous reports indicate that a majority of pediatric residents completing dually accredited residency training,

pursue certification through the AOBP. Burkhart and Lischka report that among 171 pediatric residents of dually accredited residencies between 2000 and 2010, most became board-certified by the AOBP only (43 percent), followed by AOBP and ABP (25 percent), and ABP only (24 percent).<sup>6</sup>

**Ongoing Specialty Board Certification**

**ABP Maintenance of Certification (MOC)**

In 2003, the ABP started the Maintenance of Certification (MOC) for pediatricians; in 2010, pediatric recertification changed to continuous certification through the MOC program.<sup>13</sup> As depicted in Table 1, ABP’s MOC program involves four parts.<sup>14</sup> To satisfy Parts 2 and 4 requirements, the ABP currently recognizes assessments from a variety of organizations such as the American Academy of Pediatrics (AAP), ABP, National Committee for Quality Assurance, and many other hospital and medical education organizations.<sup>15</sup>

**AOBP Osteopathic Continuous Certification (OCC)**

By the end of 2012, the AOBP is expected to fully implement AOA’s Osteopathic Continuous Certification (OCC) program (Table 1).<sup>11,16</sup> To satisfy Component 4 requirements, the AOBP anticipates requiring completion of one Clinical Assessment Program (CAP) practice performance assessment module every three years. For those wishing to continue specialty certification by both the ABP and AOBP, it is not clear how much reciprocity with continuing certification requirements will be allowed or recognized. The ABP provides reciprocity for other ABMS boards (e.g., Emergency Medicine) for Parts 2

**Table 1**  
**MOC, OCC and MOL requirements and proposed recommendations for osteopathic pediatricians**

| ABP MOC <sup>14</sup>                         | AOBP OCC <sup>26</sup>                                       | FSMB MOL <sup>18</sup>                              |
|---|--|---|
| Part 1. Professional standing and licensure   | Component 1. Unrestricted licensure                          |   |
| Part 2. Lifelong learning and self-assessment | Component 2. Lifelong learning/ continuing medical education | Component 1. Reflective lifelong learning           |
| Part 3. Cognitive expertise— secure exam      | Component 3. Cognitive assessment                            | Component 2. The assessment of knowledge and skills |
| Part 4. Performance in practice               | Component 4. Practice performance assessment and improvement | Component 3. Performance in practice.               |
|   | Component 5. Continuous AOA membership                       |   |

**Abbreviations:** ABP: American Board of Pediatrics; MOC: Maintenance of Certification; AOBP: American Osteopathic Board of Pediatrics; OCC: Osteopathic Continuous Certification; FSMB: Federation of State Medical Boards; MOL: Maintenance of Licensure; AOA: American Osteopathic Association.

and 4, but has not provided information regarding reciprocity for AOBP OCC activities.<sup>17</sup> Additionally, the AOBP and AOA have provided limited information regarding reciprocity of ABP-sponsored MOC activities to satisfy OCC requirements.

### State Medical and Osteopathic Board Requirements

In addition to maintaining specialty board certification through the ABP, AOBP or both, D.O. pediatricians must satisfy licensure requirements for the state or jurisdictions in which they practice. The Federation of State Medical Boards (FSMB) includes 70 jurisdictions for licensing physicians including 50 state medical licensing boards, 14 osteopathic state licensing boards, and the licensing boards of 5 districts and territories.<sup>18,19</sup> One of the relicensure requirements for all but six of these licensing boards is continuing medical education (CME) credits.<sup>20</sup> Individual jurisdictions vary in CME requirements pertaining to the number of credit hours, legislatively mandated topics (e.g., infection control, cultural competency, disaster preparedness), and sponsorship.<sup>3,20,21</sup> For FSMB-member state licensing boards, CME is regulated by the Accreditation Council for Continuing Medical Education (ACCME) and/or the AOA,<sup>2,22</sup> and D.O.s may participate in CME activities sponsored by either of these regulating bodies.<sup>20</sup> Among jurisdictions which require CME activity and license D.O.s, 16 jurisdictions require AOA-specific CME credits to maintain licensure, and 38 jurisdictions do not require AOA-specific CME credits to maintain licensure.<sup>20</sup> D.O.s who are licensed by one of the 16 jurisdictions requiring AOA-specific CME credit are required to participate in AOA-accredited CME activities regardless of their specialty certification status within the AOBP or the ABP.

### Proposed MOL Requirements

Going beyond the traditional CME model, the FSMB encourages evidence of participation within programs of continuous professional development promoting areas of physician competence.<sup>18</sup> The FSMB, through the MOL initiative, hopes to improve quality, safety and physician practice improvement through an active licensure renewal process.<sup>23</sup> As depicted in Table 1, three specific components of MOL have been identified.<sup>18</sup> The FSMB has acknowledged that required MOC and OCC activities could “substantially comply with a state licensing board’s expectation for MOL.”<sup>18</sup> Therefore, AOBP OCC and ABP MOC activities could potentially satisfy MOL requirements for a particular jurisdiction. At this point, the MOL initiative is still evolving, and it

is not clear how much reciprocity will be allowed between OCC, MOC, and MOL, particularly for those states currently requiring AOA-specific CME activities for relicensure.

### Satisfying Both Licensure and Pediatric Specialty Board Requirements

With three options for residency training (accreditation by the ACGME, AOA or both), three options for initial specialty board certification (certification by the ABP, the AOBP, or both), an option for receiving AOA approval for ACGME training, and two alternatives for fulfilling CME requirements of state medical and osteopathic boards (accreditation by the AOA and ACCME), D.O. pediatricians can be classified in one of eight different ways (Table 2). The complexity and challenges confronted by each D.O. pediatrician depends on numerous practice variables, including type of residency training, initial specialty certification, and state licensure. A physician who is trained in an AOA-accredited residency program, received initial specialty board certification through the AOBP, and practices in a state requiring AOA-specific CME activity to renew medical licensure (Category 1) has little difficulty satisfying both specialty board certification and state licensure requirements. He or she only needs to satisfy AOA-specific CME

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activities. At the other end of the spectrum, consider a D.O. pediatrician who trained in an ACGME-accredited residency program, received initial specialty board certification through the ABP, and practices in a state that does not require AOA-specific CME activity (Category 4). This physician also has little difficulty satisfying both specialty board certification and state licensure requirements because he or she only needs to satisfy ACCME-accredited CME activities.

The most difficult challenges confronted by D.O. pediatricians are for those in Categories 3, 5, 6, 7 and 8 (Table 2). These D.O. pediatricians must participate in both AOA-accredited and ACCME-accredited CME activities to maintain licensure and specialty board certification. For instance, consider a



**Table 2**

**CME requirements for osteopathic pediatricians, by type of residency and specialty board certification**

| Category | Residency Program Accreditation | Initial specialty certification               | License renewal CME requirements (State/jurisdiction requirements) <sup>20, A</sup> | MOC/OCC CME requirements (Specialty board requirements) | Comments  |
|----------|---------------------------------|---|---|---|---|
| 1        | AOA                             | AOBP  | AOA   | AOA   | This is a physician who completed an AOA-accredited residency and is practicing in a state which requires AOA-specific CME credits to renew licensure. <sup>c</sup> This physician would only need AOA-specific credit to renew state license and maintain board certification.   |
| 2        | AOA                             | AOBP  | AOA or ACCME <sup>B</sup>   | AOA   | This is a physician who completed an AOA-accredited residency and is practicing in a state which does not require AOA-specific CME credits to renew licensure. <sup>d</sup> This physician would need either AOA or ACCME CME credit to renew a state license; and AOA-specific credit to maintain board certification.   |
| 3        | ACGME                           | ABP   | AOA   | ACCME <sup>B</sup>                                      | This is a physician who completed an ACGME-accredited residency and is practicing in a state which requires AOA-specific CME credits to renew licensure. <sup>c</sup> This physician would need AOA credit to renew a state license, and ACCME credit to maintain board certification. In addition, this physician may also require AOA approval of ACGME training for the first year of residency. <sup>E</sup>  |
| 4        | ACGME                           | ABP   | AOA or ACCME <sup>B</sup>   | ACCME <sup>B</sup>                                      | This is a physician who completed an ACGME-accredited residency and is practicing in a state which does not require AOA-specific CME credits to renew licensure. <sup>d</sup> This physician would need either AOA or ACCME credit to renew a state license; and ACCME credit to maintain board certification.  |
| 5        | ACGME                           | ABP<br>AOBP (after initial ABP certification) | AOA   | AOA and ACCME <sup>B</sup>                              | This is a physician who completed an ACGME-accredited residency and is practicing in a state which requires AOA-specific CME credits to renew licensure. <sup>c</sup> This physician may have elected to obtain AOBP-certification after initial ABP-certification for a variety of reasons (e.g. became osteopathic residency program director). This physician would need AOA credit to maintain a state license; and both ACCME and AOA credit to maintain board certification. In addition, this physician would require AOA approval for ABP certification and may also require AOA approval of ACGME training for the first year of residency. <sup>E</sup>                           |
| 6        | ACGME                           | ABP<br>AOBP (after initial ABP certification) | AOA or ACCME <sup>B</sup>   | AOA and ACCME <sup>B</sup>                              | This is a physician who completed an ACGME-accredited residency and is practicing in a state which does not require AOA-specific CME credits to renew licensure. <sup>d</sup> This physician may have elected to obtain AOBP-certification after initial ABP-certification for a variety of reasons (e.g. became an osteopathic residency program director). This physician would need AOA or ACCME CME credit to renew a state license; and both ACCME and AOA CME credit to maintain board certification. In addition, this physician would require AOA approval for ABP certification, and may also require AOA approval of ACGME training for the first year of residency. <sup>E</sup> |
| 7        | AOA/ACGME                       | AOBP<br>ABP                                   | AOA   | AOA and ACCME <sup>B</sup>                              | This is a physician who completed a combined AOA/ACGME-accredited residency and is practicing in a state which requires AOA-specific CME credits to renew licensure. <sup>c</sup> This physician would need AOA credit to renew a state license; and both ACCME and AOA credit to maintain board certification.   |
| 8        | AOA/ACGME                       | AOBP<br>ABP                                   | AOA or ACCME <sup>B</sup>   | AOA and ACCME <sup>B</sup>                              | This is a physician who completed an ACGME-accredited residency and is practicing in a state which does not require AOA-specific CME credits to renew licensure. <sup>d</sup> This physician would need AOA or ACCME credit to renew a state license; and both ACCME and AOA credit to maintain board certification.  |

**Abbreviations:** AOA: American Osteopathic Association; ACGME: Accreditation Council for Graduate Medical Education; MOL: Maintenance of Licensure; MOC: Maintenance of Certification; OCC: Osteopathic Continuous Certification; AOBP: American Osteopathic Board of Pediatrics; ABP: American Board of Pediatrics; ACCME: Accreditation Council for Continuing Medical Education.

<sup>A</sup> Six jurisdictions currently do not require CME credits for licensure.<sup>20</sup>

<sup>B</sup> ACCME-accredited CME activity or one of its seven member organizations (ABMS, AHA, AMA, AHME, AAMC, CMS, FSMB)<sup>22</sup>

<sup>c</sup> 16 jurisdictions that certify osteopathic physicians require AOA-approved or osteopathic-specific CME credits to renew licensure:<sup>20</sup> 12 osteopathic boards and 4 composite state licensing boards.

<sup>d</sup> 38 jurisdictions that license osteopathic physicians do not require AOA-approved or osteopathic-specific CME credits to renew licensure:<sup>20</sup> 36 composite state licensing boards and 2 osteopathic licensing boards.

<sup>E</sup> AOA approval of ACGME internship and residency training. D.O.s who complete ACGME-approved programs may apply for AOA approval.<sup>12</sup>

physician in Category 7: a physician who trained in a dually-accredited (ACGME/AOA) residency program, received initial specialty board certification by the ABP and AOBP, and practices in a state that requires AOA-specific CME activities to renew medical licensure. This physician must complete both ACCME- and AOA-accredited CME activities to maintain state licensure and specialty board certification.

Osteopathic pediatricians are confronted not only by the complexity of satisfying specialty board and state licensure requirements, but also by the redundancy of efforts. As CME providers, the ACCME and AOA share similarities in structure, mission, purpose, ethical standards for commercial support, and procedures for evaluating effectiveness of the activities.<sup>22</sup> Specific CME activities have been developed to satisfy both AOA- and ACCME-accreditation requirements,<sup>22</sup> but those opportunities are few and far between for D.O. pediatricians. Two dually-approved CME programs provided opportunities for all physicians (M.D. or D.O., ACGME- or AOA-trained, ABP or AOBP-certified) to fulfill CME requirements for both specialty board certification and state licensure.<sup>24,25</sup>

Studying the potential benefits of offering educational opportunities which are dually sponsored by the ACCME and AOA requires a needs assessment of the osteopathic pediatricians' workforce. How many are in each of the eight categories specified in Table 2, how many are dually certified through the ABP and AOBP, how many are in jurisdictions that require AOA-specific CME activities? Simply stated, how many would benefit from participating in CME activities which are sponsored by both the AOA and ACCME? As discussed above, D.O.s contribute to a considerable portion of the pediatric workforce, but three important facts remain unknown: the number of D.O.s certified by the ABP, the number of D.O.s dually certified by the ABP and AOBP, and the distribution of ABP and AOBP-certified D.O.s by state or jurisdiction. Once these questions are answered, the true benefit of offering dually accredited CME activities can be elucidated.

### Challenges and Opportunities for D.O.s

Among all specialties, 38 percent of D.O.s have ABMS specialty board certification and 40 percent have AOA BOS specialty board certification,<sup>3,11</sup> and among those who completed dually-accredited residency programs, 18 percent became specialty board certified by both the ABMS and AOA BOS.<sup>6</sup> The challenge for all D.O.s is that they must satisfy not only state licensure requirements which vary across jurisdictions, but also specialty board requirements which may or may not

be recognized by the state in which they practice. This is particularly challenging for those with dual certification by the ABMS and AOA BOS, where redundancy and duplication of efforts are commonplace. Now that 22 percent of all AOA-approved residency training programs are dually accredited,<sup>6</sup> addressing this redundancy becomes increasingly important. As the MOL, MOC and OCC movements gain momentum, consequences to D.O.s are unclear. To avoid significant redundancy and duplication of efforts, one could envision D.O.s electing to move away from states where requirements are too burdensome for D.O.s, or electing to discontinue ABMS or AOA BOS certification efforts (especially for those currently dually certified or reaching retirement). This could have implications for physician workforce and patient access to care.

The AOA OCC requirements are similar to the MOC requirements by the ABMS, and both of these constructs overlap, to some degree, with the FSMB's recommendations on MOL. There appears to be a spirit of collaboration and recognition of the need to reduce redundancy and barriers for physicians.<sup>18</sup> The AOA has also expressed a desire to collaborate with

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### AS AN EVALUATION SYSTEM REQUIRING ALL PHYSICIANS TO DEMONSTRATE CLINICAL COMPETENCE EVOLVES, CONTINUED COLLABORATION IS ESSENTIAL.

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stakeholders,<sup>26</sup> but recommendations have not been specific. The FSMB began discussion in 2010 with the AOA, National Board of Osteopathic Medical Examiners (NBOME) and American Association of Colleges of Osteopathic Medicine (AACOM) to explore data-sharing opportunities and collaboration.<sup>3</sup> In addition, the AOA BOS has had meetings with an FSMB-led MOL collaboration group consisting of the FSMB, ABMS, AOA BOS, NBOME, and National Board of Medical Examiners (NBME) with this goal in mind.<sup>27</sup>

### Implications for All Osteopathic Physicians

Using pediatrics as a case in point, the current challenges and complexities of demonstrating continuous fitness for practice for osteopathic physicians have been presented in this article. Educational activities required for specialty board certification may or may not be recognized by the jurisdiction in which D.O.s practice. Educational and CME programs jointly accredited by the ACCME and AOA would provide

opportunities for D.O.s to fulfill specialty board and state licensure requirements, reducing redundancy.

Participating in activities to demonstrate clinical competence is certainly not unique to D.O. pediatricians. With the advent of CME reform, MOL, MOC and OCC, collaboration between state medical boards, subspecialty boards, and stakeholders has been advocated for all physicians.<sup>2,18,21</sup> As an evaluation system requiring all physicians to demonstrate clinical competence evolves, continued collaboration is essential in an effort to reduce redundancy and barriers to D.O.s in practice. ■

## References

1. Shannon SC, Teitelbaum HS. The status and future of osteopathic medical education in the United States. *Acad Med*. 2009; 84(6): 707-711.
2. Rodgers DJ. AOA Continuing Medical Education. *J Am Osteopath Assoc*. 2011; 111(4): 264-278.
3. Young A, Chaudhry HJ, Rhyne J, Dugan M. A census of actively licensed physicians in the United States, 2010. *J Med Regulation*. 2011; 96(4): 10-20.
4. Freeman E, DeRosier A, Lischka TA. Osteopathic Graduate Medical Education 2011. *J Am Osteopath Assoc*. 2011; 111(4): 234-243.
5. American Osteopathic Board of Pediatricians. Certification. Available at <http://www.aobp.org/certification.shtml>. Archived at <http://www.webcitation.org/5zKwNUw10> on June 10, 2011.
6. Burkhart DN, Lischka TA. Dual and parallel postdoctoral training programs: implications for the osteopathic medical profession. *J Am Osteopath Assoc*. 2011; 111(4): 247-256.
7. American Osteopathic Association (AOA). Opportunities — AOA-Approved Internships and Residencies. Available at <http://www.opportunities.osteopathic.org/search/search.cfm> Archived at <http://www.webcitation.org/5zKwW8VgV> on June 10, 2011.
8. Brotherton SA, Etzel SI. Graduate Medical Education, 2009-2010. *JAMA*. 2010; 304(11): 1255-1270.
9. American Board of Pediatrics. Workforce Data 2010-11. Available at <https://www.abp.org/abpwebsite/stats/wrkfrc/workforcebook.pdf>. Archived at <http://www.webcitation.org/5zKwoDZei> on June 10, 2011.
10. American Board of Pediatrics. Initial General Pediatrics Certification. Available at <https://www.abp.org/ABPWebStatic/?anticache=0.13191780118553198#murl%3D%2FABPWebStatic%2Fbecomecertgp.html%26surl%3Dhttps%3A%2F%2Fwww.abp.org%2Fabpwebsite%2Ftakeexam%2Fgeneralpediatricscertifying%2Fadmissionrequirements.htm>. Archived at <http://www.webcitation.org/5zKxGTR6Y> on June 10, 2011.
11. Ayres RE, Scheinthal S, Gross C, Bell EC. Osteopathic Specialty Board Certification. *J Am Osteopath Assoc*. 2011; 111(4): 280-288.
12. Duffy T, Martinez B. AOA approval of ACGME internship and residency training. *J Am Osteopath Assoc*. 2011; 111(4): 244-246.
13. American Board of Pediatrics. Maintenance of Certification Requirements. Available at <https://www.abp.org/ABPWebStatic/#murl%3D%2FABPWebStatic%2Fmoc.html%26surl%3D%2Fabpwebsite%2Fmoc%2Fphysicianrequirements%2Fphysreq.htm>. Accessed June 10, 2011.
14. American Board of Pediatrics. Maintenance of Certification (MOC) Four-Part Structure. Available at [https://www.abp.org/ABPWebStatic/#murl%3D%2FABPWebStatic%2Fmoc.html%26surl%3Dhttps%3A%2F%2Fwww.abp.org%2Fabpwebsite%2Fmoc%2Faboutmoc%2Fmaintenanceofcertification\(moc\)four-partstructure.htm%3Fsection%3Dmoc](https://www.abp.org/ABPWebStatic/#murl%3D%2FABPWebStatic%2Fmoc.html%26surl%3Dhttps%3A%2F%2Fwww.abp.org%2Fabpwebsite%2Fmoc%2Faboutmoc%2Fmaintenanceofcertification(moc)four-partstructure.htm%3Fsection%3Dmoc). Accessed June 10, 2011.
15. American Board of Pediatrics. Approved QI Projects and Activities. Available at <https://www.abp.org/ABPWebStatic/#murl%3D%2FABPWebStatic%2Fmoc.html%26surl%3D%2Fabpwebsite%2Fmoc%2Fperformanceinpractice%2Fapprovedq1projects%2Fappq1proj.htm>. Accessed June 10, 2011.
16. American Osteopathic Board of Pediatricians. Osteopathic Continuous Certification. Available at <http://www.aobp.org/OCC.html>. Archived at <http://www.webcitation.org/5zL07KOJH> on June 10, 2011.
17. American Board of Pediatrics. Reciprocal Maintenance of Certification (MOC) Credit. Available at <https://www.abp.org/abpwebsite/moc/recipmaintcert/recipmoccert.htm>. Archived at <http://www.webcitation.org/5zL0JVFmo> on June 10, 2011.
18. Chaudhry HJ, Rhyne J, Cain FE, Young A, Crane M, Bush F. Maintenance of licensure: protecting the public, promoting quality health care. *J Med Reg*. 2010; 96 (1): 1-8.
19. The Federation of State Medical Boards (FSMB). Directory of state medical and osteopathic boards. Available at [http://www.fsmb.org/directory\\_smb.html](http://www.fsmb.org/directory_smb.html). Archived at <http://www.webcitation.org/5zL1DfTQr> on June 10, 2011.
20. American Medical Association. *State Medical Licensure Requirements and Statistics 2011*. United States: American Medical Association Publications and Clinical Solutions; 2011.
21. Miller SH, Thompson JN, Mazmanian PE, Aparicio A, Davis DA, Spivey BE, Kahn NB. Continuing medical education, professional development, and requirements for medical licensure: a white paper of the Conjoint Committee on Continuing Medical Education. *J Contin Educ Health Prof*. 2008;28(2):95-8.
22. Plungas GS, Tulgan H, DeMarco WJ, Aghababian RV. American Medical Association and American Osteopathic Association credit systems: accomplishing dual credit for a conference. *J Contin Educ Health Prof*. 2001;21(3):182-6.
23. The Federation of State Medical Boards (FSMB). Maintenance of Licensure Information Center. Available at <http://www.fsmb.org/mol.html>. Archived at <http://www.webcitation.org/5zL10QLFa> on June 10, 2011.
24. American College of Osteopathic Pediatricians (ACOP). 2007 Future of Pediatrics Conference. Available at [http://www.acopedes.org/meetings/FOP\\_Brochure2007.pdf](http://www.acopedes.org/meetings/FOP_Brochure2007.pdf). Archived at <http://www.webcitation.org/5zL1aMqb1> on June 10, 2011.
25. American College of Osteopathic Pediatricians (ACOP). 2009 Future of Pediatrics Conference. Available at <http://www.acopedes.org/meetings/2009fop/2009FoP.pdf>. Archived at <http://www.webcitation.org/5zL1UvrRI> on June 10, 2011.
26. Ayres RE, Scheinthal S, Gross C, Bell EC. Osteopathic Specialty Board Certification. *J Am Osteopath Assoc*. 2010; 110(3): 183-192.
27. National Board of Osteopathic Medical Examiners. The Osteopathic Examiner, March 2011. Available at [http://www.nbome.org/docs/The\\_Osteopathic\\_Examiner\\_03-2011.pdf](http://www.nbome.org/docs/The_Osteopathic_Examiner_03-2011.pdf). Archived at <http://www.webcitation.org/5zPjoHYPE> on June 13, 2011.