Getting Maintenance of Certification to Work
A Grounded Theory Study of Physicians’ Perceptions

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Rapidly changing medical knowledge and skills challenge physicians to constantly grow professionally and remain current for the benefit of their patients and communities. Physicians, especially in the United States, have enjoyed the privilege of professional self-regulation because of their specialized expertise and extensive training.1-3 Certification boards grew out of the professional self-regulation framework with a mandate to ensure that physicians who completed formal training were competent for independent practice.1 However, evidence suggesting that many physicians’ knowledge and skills decline over time,4-6 together with evolving public and political pressures, led to the recognition that once-in-a-lifetime certification was insufficient to ensure ongoing competence.1,7

As a result, the American Board of Medical Specialties formally approved maintenance of certification (MOC) in 2000.

Since the primary constituency for certification is the public, MOC represents a professional demonstration of public accountability and transparency.8 Maintenance of certification is also intended to encourage ongoing improvements in physicians’ knowledge and skills, and in the quality of care they provide, through self-directed assessment and quality-improvement activities. Although authors have raised concerns about the effectiveness, relevance, and value of current MOC programs,1,9,10 growing evidence supports associations between MOC and important clinical quality measures.11,12 Surveys also indicate that

**IMPORTANCE** Despite general support for the goals of maintenance of certification (MOC), concerns have been raised about its effectiveness, relevance, and value.

**OBJECTIVE** To identify barriers and enabling features associated with MOC and how MOC can be changed to better accomplish its intended purposes.

**DESIGN, SETTING, AND PARTICIPANTS** Grounded theory focus group study of 50 board-certified primary care and subspecialist internal medicine and family medicine physicians in an academic medical center and outlying community sites.

**EXPOSURES** Eleven focus groups.

**MAIN OUTCOMES AND MEASURES** Constant comparative method to analyze transcripts and identify themes related to MOC perceptions and purposes and to construct a model to guide improvement.

**RESULTS** Participants identified misalignments between the espoused purposes of MOC (eg, to promote high-quality care, commitment to the profession, lifelong learning, and the science of quality improvement) and MOC as currently implemented. At present, MOC is perceived by physicians as an inefficient and logistically difficult activity for learning or assessment, often irrelevant to practice, and of little benefit to physicians, patients, or society. To resolve these misalignments, we propose a model that invites increased support from organizations, effectiveness and relevance of learning activities, value to physicians, integration with clinical practice, and coherence across MOC tasks.

**CONCLUSIONS AND RELEVANCE** Physicians view MOC as an unnecessarily complex process that is misaligned with its purposes. Acknowledging and correcting these misalignments will help MOC meet physicians’ needs and improve patient care.
most physicians embrace the concept of MOC and support the need for ongoing formative assessment and feedback.

Less research has focused on the experience of the recertifying physician despite some vocal expressions of dissatisfaction. Several studies have assessed satisfaction with components of the program, but we are not aware of research inductively exploring participants’ perceptions of MOC as a complete program. Understanding the perceived benefits, limitations, and barriers of MOC could help certification boards and other stakeholders refine and improve MOC to better meet the needs of physicians and patients.

Methods
We conducted a qualitative study focused on the following questions: what are the barriers and enabling features associated with current MOC activities, and how can these activities be changed to more effectively accomplish the intended purposes of MOC?

This grounded theory study used as the primary data source focus groups composed of practicing internal medicine and family medicine physicians. As part of a project exploring physician learning in practice, we held 11 focus groups from September 29, 2011, through April 17, 2012; a total of 7 were at an academic medical center and 4 at outlying primary-care sites.

Context
At the time of this study, MOC comprised 4 phases: part I, professional standing (maintenance of active licensure); part II, lifelong learning (completion of self-assessment and self-study modules); part III, cognitive expertise (passing a high-stakes multiple-choice examination); and part IV, practice performance (completion of a quality-improvement project).

Mayo Clinic is a large multisite health system that includes an academic center in Rochester, Minnesota, and approximately 70 community sites in Minnesota, Iowa, and Wisconsin. Mayo Clinic’s culture emphasizes patient-centered care and continuous improvement. All physicians are required to maintain certification in their primary specialty. Institutional funds cover most physicians’ enrollment fees, and leaders have supported several MOC initiatives such as large-group collaborative completion of part II modules, locally developed computer-based part II modules, and on-site approval of quality improvement projects for part IV credit.

Each focus group lasted about 1 hour and comprised 3 to 5 physicians. Each session began with a discussion of barriers to point-of-care learning (previously reported) and then transitioned to a conversation about MOC. The moderator (K.J.S.) briefly defined the 4 parts of MOC and asked, “Based on your understanding of the MOC process, what is the most difficult part of MOC activities?” Other preplanned questions (see eMethods in the Supplement) included, “What could be done to simplify or facilitate those activities?” and, “What could be done to make part [II, III, IV] easier?” Additional probing questions were used as needed.

Statistical Analysis
Three investigators (D.A.C., E.S.H., and K.J.S.) analyzed anonymized focus group transcripts using the constant comparative method to identify a grounded theory model defining features essential in the effective implementation of MOC. We inductively identified initial codes outlining the value of, barriers to, and processes of MOC (open coding) and then examined interrelationships within and between these codes (axial coding) to identify potentially useful changes and eventually build a new conceptual model. We used Dedoose (www.dedoose.com) to facilitate this analysis.

To complement our focus group data, we reviewed key articles in search of omitted themes regarding value, barriers, purposes, and ideal processes. Finally, near the end of our analysis, we asked 3 focus group participants to review the model (member check); we made minor adjustments in response.

Intentions of Certifying Boards
As a prelude to our exploration of physicians’ perceptions, we reviewed the websites of the American Board of Medical Specialties, American Board of Internal Medicine, and American Board of Family Medicine for statements clarifying the purposes of MOC. Although details of our analysis and results are not shown, this examination of information promoted to physicians and the lay public indicates that certifying boards aim to:
1. Protect the public trust and ensure that physicians are likely to provide up-to-date, high-quality care;
2. Encourage physicians’ personal commitment to the profession;
3. Introduce physicians to the science of quality improvement;
4. Promote self-regulated assessment in the context of real-world practice; and
5. Accomplish this through an evidence-based, multimodal, comprehensive program of lifelong learning (ie, MOC).

Results
Perceptions of MOC
Our focus group participants indicated that the purposes of MOC have not translated to the lives of individual physicians and their practice-specific needs. As one participant noted in session 5, “I think the objective is reasonable. The operation-
A Good Idea, But …

All participants acknowledged the high-level purposes of MOC and expressed a firm desire to maintain their clinical competence and professional identity. Yet, they simultaneously expressed deep frustration and discontent with the current MOC system. Participants perceived MOC as offering little, if any, value to themselves as individual physicians and questionable value to patients or society. Such sentiments agree with statements by previous authors, such as, “The experts for and against MOC agree that the concept of recertification is sound—what they disagree about is the process.”

Only a Hoop

Participants noted that the primary reason they participated in MOC was to maintain needed professional standing—a hoop to jump through. Maintenance of certification activities were relatively inefficient for learning or improvement: “A lot of work for a little bit of gain,” as one participant noted in session 8. The extreme paucity of comments suggesting benefit was as irrelevant to their practice and an inefficient means of updating clinical knowledge and skills. Part IV also lacked optimal integration with patient care.

Nearly all participants named part IV as the most difficult and frustrating part of MOC: “It’s time consuming; it’s cumbersome.” Some participants expressed disappointment that their day-to-day practice improvement efforts did not merit credit while others noted that eligible projects were ongoing in their department but that they were unaware of these group projects until it was too late. They lamented that many current activities consist of paperwork and related tasks of low learning value (eg, data abstraction) and suggested that these could be delegated to someone else. Participants also believed they lacked needed skills or training to lead and evaluate a quality improvement project.

Part II activities were also believed to be challenging for similar reasons, albeit less so than part IV. Although some participants perceived benefits, many expressed concern that questions and answers were irrelevant to their practice, narrowly focused, out of date, or simply wrong. Most expressed concerns about the time required. Several described approaches that improved efficiency (eg, investing minimal effort to answer questions), but these efficiencies occasionally required an explicit trade-off with learning effectiveness. Others detected a conflict in the dual purpose of simultaneously assessing knowledge and facilitating learning, and suggested that it accomplished neither purpose particularly well.

Table 1. Quotes Supporting Participants’ Perceptions of Maintenance of Certification

<table>
<thead>
<tr>
<th>Perception</th>
<th>Supporting Quotes</th>
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<tr>
<td>A good idea, but …</td>
<td>The concept is a good idea, you know, ‘Make sure you’re doing something to make life better for your patients.’ I believe in that concept, no problem. But the programs that we have running, and the incentives that we have financially, are already there—way beyond anything this pitiful little project is going to do (session 11).</td>
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<td>Only a hoop</td>
<td>I don’t think they’re hard. It’s just one more thing to do and...it generates lots of anxiety. ...It’s just expensive and...more hoops you’ve got to get through (session 4). I think that’s a lot more “street cred” if you’re certified (session 2).</td>
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<td>Irrelevant, inefficient, and unintegrated</td>
<td>Part IV - Physician 1: The performance in practice is probably [the most difficult part of maintenance of certification]. Physician 2: Yeah. That’s a pain in the neck. Physician 3: That’s worthless. Physician 4: That is worthless. It’s pointless (session 5). How do you translate your usual practice improvement efforts—what we do all the time at Mayo—into this maintenance of certification (session 1)? Part II - Multiple-choice questions are not necessarily reflective of your practice experience or ability (session 10). After taking 10 min per question on the first 2 or 3 questions, you think, ‘The hell with it.’ You flunk it, then you go back and you reconcile your answers, and then you’re done (session 5).</td>
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<td>Complicated, confusing (at first), and logistically difficult</td>
<td>I don’t even know what I’m supposed to do or when I’m supposed to do it. So, I haven’t even looked at it (session 10). It’s asking you to do a project without systems in place to actually do it (session 5). I feel like I’m constantly scrambling to get things done and stay on top of things and prioritize, and this tends to fall pretty low...priority. Patient care has to come first (session 6).</td>
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<td>More effective as a group</td>
<td>[At part II group sessions] I’m actually learning something as opposed to just getting the stupid questions done so I can get my credit and move on. There’s actually [in-depth] discussion….I learned a ton (session 2). You could be part of a team and take credit for [a part IV project]. You don’t have to be the champion for that project. That becomes very easy (session 8).</td>
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Complicated, Confusing (at First), and Logistically Difficult
Several participants expressed confusion and anxiety about complicated and continuously changing requirements, especially early in the process. Participants also noted the lack of systems support and the challenge of fitting activities into their already busy schedules. Because of these logistical issues, as well as low perceived value, participants almost universally procrastinated completion as long as possible. However, those who had completed recertification noted that the process was ultimately less complicated than anticipated.

Participants noted the financial cost of MOC, but in contrast to previously raised concerns, they did not perceive this as a major barrier.

More Effective as a Group
Participants emphasized that all phases of MOC were more effective and efficient when done as a group, especially the large-group part II sessions.

Part III? We’re Used to That
Part III (the secure examination) generated little discussion and seemed to present little stress. Many participants found it effective and efficient when done as a group, especially the large-group part II sessions.

Recommendations for Change
Based on the focus group discussions, we distilled a grounded theory model defining 6 areas in which MOC needs to change. These interrelated themes, inductively identified from participant comments, highlight features that, if enhanced, will align MOC with its intended purposes and thereby enable it to better meet the needs of individual physicians. Table 2 illustrates the model’s development and Table 3 contains supportive quotes.

Value for Physicians and Their Patients
Despite the certifying boards’ outreach efforts and published evidence, physicians pursue MOC only because it is required of them and not because they perceive intrinsic benefit to themselves or their patients. Something more must be done to convince physicians that MOC offers inherent utility as an impetus to purposeful study. While several commented on the esoteric nature of the questions (“it’s a test world” [session 6]) and the lack of feedback, and others disliked the need to complete the examination in a secure testing facility, no one seriously questioned this aspect of MOC. As one participant noted in session 1, “We’re used to doing that.”
Table 3. Quotes Supporting the Proposed Practice Changes to Achieve Realignment

<table>
<thead>
<tr>
<th>Change</th>
<th>Supportive Quotes</th>
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<tr>
<td>Value</td>
<td>Getting points is easy...but the points [sic] is really not the issue, it's the learning (session 1). You're making our need for clinical information and managing a patient simultaneously coincide with our need for recredentialing. Any time you can get 2 for the price of 1, it's very helpful (session 3). Physician 1: Have the answer available readily, too. That's really helpful. Physician 2: That is an important one. Because you're learning from this; that's really the purpose of this—that you update your knowledge and learning, and having the answers available within these questions is really what we are trying to achieve. If I have a question where I'm not sure what the answer is, but I could click and read and then get the answer, that's learning (session 8).</td>
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<td>Integration</td>
<td>We live in an environment where QI is kind of just [an] everyday thing we do. We continually improve what we do. We don't call it QI projects, but we always do it and [to get credit] you just have to frame it and sometimes do some component of it that you might [otherwise] omit (session 8). If they want to accomplish what they're trying to accomplish, this is a big arrow in their quiver: you're gonna get a lot better compliance from the providers that are doing the work if you can say, “Not only is this a good thing for the patients but you also are going to get your part IV taken care of by just doing this. All you have to do is do these things: check the [hemoglobin] A1c, check the ___ (whatever you're doing) (session 6).” I actually think that’s kind of exciting that we could get [part II] credit for stuff we do every day (session 7). That would be a great advance...if [my point-of-care questions] were cataloged and my MOC questions were now geared to my current practice (session 9).</td>
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<td>Effectiveness</td>
<td>I see it as a way to do some self-reflection and to change the status quo. …We all want to do the best for every patient, but sometimes we don't realize that we're not doing the best for every patient because we've just accepted what we've been taught (session 3). They just wanted to know that you're trying to use the quality improvement tools. ...Many people have never used a Pareto chart or value stream or anything of that sort. And so just applying those tools is part of the exercise, and seeing your reflection on them. It's not quite as daunting now, especially with the guidance through Mayo Quality Academy (session 9).</td>
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<td>Relevance</td>
<td>I’ve always learned better when I had the situation, I have to tie it to somebody, something that happened. I go to these meetings abroad...[and] you look, you think about it; [but] it's not getting in my head as much as if I know a patient that had to go through it (session 5). It would be wonderful if we could profile our own practices and figure out where we are making the same repetitive mistakes. Maybe we're not using, in our field, ACE inhibitors enough or statins enough. And you could send us a reminder that, “Based upon your practice patterns, you're using statins 80% of the time; the institutional average is deemed to be 94%. Here are some articles to read to help you understand why these drugs are important.” So sort of continuous loop feedback about how you're practicing, where you are making common, accepted mistakes (session 3). If I had a tool that told me, “You really have some deficiencies in this area,” I'd focus on those rather than reading about the stuff I already enjoy (session 1). “I’ve done the [American Academy of Family Physicians] board review course once, just as an opportunity to do a comprehensive look back. Because there are...a lot of parts of family practice you don’t use every day anymore because you get into a patient population and pattern of things that you see (session 5).”</td>
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<tr>
<td>Coherence</td>
<td>I was thinking [of a] dashboard that would tell me how many times I need to come back to keep my maintenance of certification on target (session 3). [Key elements of a system are] understanding who the user is and being able to push information to that individual. So [the system] knows that I’m a gastroenterologist, that I recertified in 2000 and or I’m due in 2007, that I’m licensed in Minnesota and Arizona, all of that sort of information. Being able to aggregate what those requirements are to maintain those certifications, and then [tell me], “Hey dummy, you’re 12 months away from recertifying. Most people require 6 to 9 months to do a quality improvement project. Here is a list of active projects that you might consider in your area (session 8).” The more you can get multiple credits—not treating MOC and CME differently—[the better]. If you can combine those and say, “Here is everything you can get for that activity (session 8).”</td>
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(continued)
create tangible, easily observable benefits. The following additional changes will help increase value.

Integration With Clinical Practice
Maintenance of certification activities should serve the needs of the clinical practice rather than demand that physicians manipulate their practice to fulfill MOC requirements. Both MOC topics and MOC credit should emerge naturally from the physician's daily clinical workflow with minimal extra effort. As one person stated in session 11, “The programs that we have running and the incentives that we have [to improve patient care] are already there. ...I think we should get easier credit for what's already being done.” Ideally, real patients (as contrasted with case-based questions or scenarios) would provide both the trigger for learning and the evidence that learning has occurred and has been translated into practice. This serves a 2-fold purpose: directly improving patient care and ensuring that needed skills are developed and maintained.

Effectiveness of Instructional and Assessment Approaches
As stated above, many physicians noted a distinct absence of meaningful learning as a result of their MOC activities. In the absence of meaningful learning, the motivation to participate derives almost exclusively from the need for credentials. To elevate MOC from its current perception as an imposition to its intended purpose as a desirable, self-regulated learning activity, activities must be more meaningful—more effective, efficient, and relevant.

Relevance to Individual Needs
Building on the concepts of integration and effectiveness, participants suggested that learning and value would be enhanced by amplifying the relevance of learning activities, in particular by allowing most topics and activities to emerge from and remain embedded within the local clinical practice. This serves at least 3 purposes: directly improving patient care, ensuring that needed skills are developed and maintained, and providing a context that stimulates knowledge retention. Electronic tools might facilitate this process. However, participants also acknowledged the appropriateness of studying uncommon but still important topics to reflect the full breadth of their practice.

Coherence Across MOC Activities
Participants noted the lack of cohesion among the 4 parts of the MOC program. As MOC becomes more tightly integrated in the context of a highly functioning program and embedded within the clinical practice (as we suggest above), a corresponding change will be required across the different components. For example, the learning in part II would ideally prepare physicians for part III and might also provide the skills required for part IV, in addition to having a more direct and

Table 3. Quotes Supporting the Proposed Practice Changes to Achieve Realignment (continued)

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<thead>
<tr>
<th>Change</th>
<th>Supportive Quotes</th>
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<tbody>
<tr>
<td>Support</td>
<td>General administrative and organizational support, including reminders</td>
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<td></td>
<td>I think if that becomes part of [division communications]...&quot;I know that Dr X is near recertification, we have several QI projects in our division, let’s make sure he’s included...[and] learns the quality improvement steps...&quot;...Make sure that these folks are on board, and they’re not trying to do it on their own (session 8).</td>
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<td></td>
<td>[The recertification process is] all a big mystery to me. ...[It would help to have] some information to say, &quot;This is exactly what you need to do. Here are some ways to get it. Here are your deadlines (session 9).</td>
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<td></td>
<td>If they’re really serious about keeping recertification going, I think it’s not Communion to have somebody get a half day or two off just to study for that blasted exam (session 2).</td>
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<td>Support for part II</td>
<td>I really like those [part II] courses that Dr G has been putting on. The participants discuss the questions and come up with the correct answers. So you’ve got the hematologist sitting next to you, helping with the hematology question (session 9).</td>
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<td></td>
<td>You spend 2 or 3 hours a night just sort of painfully getting through [a part II module alone]. Taking 3 hours...with a bunch of your colleagues...is much more beneficial (session 5).</td>
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<tr>
<td>Support for part IV</td>
<td>&quot;We do the work...but someone [else] will collect the data. ...Then that will all be entered into the data [analysis] that’s needed to show our performance, and then we review it and sign off (session 7).&quot;</td>
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<td></td>
<td>[Administrators] come to us to say, “Okay, you’re supposed to start doing these things to change your practice.” ...Part of that should be the benefit:...&quot;At the end of this project, you are going to receive part IV credit and you don’t have to do anything beyond what we’re asking you to do clinically. We will take care of the rest of it.&quot; In a year, I should have like 4 or 5 credits because we got 4 or 5 different things going on at the same time. And it should not require anything beyond that (session 6).</td>
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<td></td>
<td>Part IV has been the most difficult part. But it’s gotten easier, with Dr W’s projects and some of our quality improvement projects for the department being counted toward it (session 7).</td>
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<td></td>
<td>Let’s get a group of people who are gonna do a QI project...here’s QI Project Day—and get ‘em together and...do it and move on (session 2).</td>
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<td></td>
<td>Even though we got an electronic medical record and we’re keeping track of the diabetes stuff...[the module] asked how many people had their foot exams...[But] we don’t [have] any place where we [document that we] look at their feet every time. But I do. But...in order to put the numbers down, you got to get the stuff on the electronic medical record. It looked like I wasn’t (session 5).</td>
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Abbreviations:
ACE, angiotensin-converting enzyme; CME, continuing medical education; MOC, maintenance of certification; QI, quality improvement.
timely application to their patients and community. The work in part IV should be used to define the learning agenda for part II. Detailed feedback on part III could also inform the part II learning agenda.

Coherence will also be improved by minimizing redundant data collection tasks, linking certification with licensure and staff credentialing, and implementing a truly continuous process of MOC. A more coherent, better-integrated, less-redundant package will not only strengthen program effectiveness but will make it more efficient and more relevant to local needs.11

Support for Physicians and Simplification of Activities

Much of the burden of MOC could be alleviated by better supporting physicians in their efforts. Administrative support could include assistance with registration and other paperwork tasks, targeted communication regarding opportunities for credit, orchestration of group efforts, and training in needed skills. Peers could offer support in collaborative activities. Such support can derive from multiple sources, including local institutions, regional collaboratives, national professional organizations, and certifying boards. An overall simplified process would help, as would improved communication and bidirectional data sharing between local institutions and certifying boards.

Participants identified several local initiatives as having tangibly improved the ease and success of MOC activities, including group sessions to complete part II modules, a local board authorized to grant part IV credit, and administrative coordination of part IV quality-improvement projects in the Mayo Clinic Department of Family Medicine.

Discussion

The overarching purpose of MOC is to improve patient care by ensuring the competence of individual physicians. However, the results of this study suggest that MOC, as currently configured for physicians in this organized health system, does not yet successfully address the specific practice and professional development needs of the individual. We identified 6 changes that may help realign the practice of MOC with the intended purposes. When reordered, the 6 changes (support, effectiveness, relevance, value, integration, and coherence) offer a useful mnemonic, SERVIC, reminding us that all involved—certifying boards and physicians—are ultimately in the service of our patients and the public health.

Limitations

As with any qualitative studies, generalizability may be limited. For example, Mayo Clinic requires all physicians to maintain board certification, financially supports MOC, and has pioneered efforts to streamline MOC. However, the fact that participants identified significant deficiencies despite this favorable culture underscores our conclusion that current programs require change. We acknowledge some overlap among themes, yet we believe the reported models accurately reflect participants’ perceptions as determined through our iterative inductive analysis. Our data do not provide quantitative evidence to support the proposed solutions, and MOC has continued to evolve since these focus groups were held. Our design did not permit analysis by subgroup (eg, participants who had or had not recertified). Physicians who agreed to participate in these focus groups may represent more strongly held (and possibly more negative) beliefs about MOC than nonparticipants. Strengths include empirical model development using rigorous qualitative methods and participants from diverse practice settings (representing community practices, academia, primary care, and multiple medical specialties).

Integration With Other Work

Our findings agree with recent calls for greater coherence,11 relevance,9 effectiveness in learning and assessment,24 and integration.1 Our contribution is unique in that it emerges inductively from the perceptions of physicians reflecting a variety of medical specialties, and organizes distinct ideas into a unified model suggesting specific targets for improving MOC. Moreover, few other studies provide suggestions for systems support, an area of great emphasis among our participants.

Maintenance of certification is in an ongoing state of evolution. Certifying boards have placed progressively increased emphasis on maintenance,13 and the American Board of Medical Specialties recently approved changes effective January 2015 that begin to address several of the barriers and shortcomings identified in this study.25 We believe our findings will help to clarify key issues and provide guidance on how the 2015 standards can be operationalized to enhance MOC value and experience.

Conclusions

Physicians view MOC as an unnecessarily complex process that is misaligned with its purposes and largely fails to meet their needs. While certifying boards cannot escape their ultimate accountability to societal needs and priorities, it seems unlikely that current tensions will resolve until physicians’ needs have been adequately acknowledged and addressed and the misalignments between purposes and processes have been corrected.

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Acquisition, analysis, or interpretation of data: Cook, Holmboe, Sorensen.

Drafting of the manuscript: Cook, Wilkinson.

Critical revision of the manuscript for important intellectual content: All authors.

Statistical analysis: Cook.
Administrative, technical, or material support: Cook, Sorensen, Wilkinson. Study supervision: Cook.

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REFERENCES