01 August, 2019

To the Board of Governors and Board of Trustees of the ABR:

On behalf of our membership, we would like to express our appreciation for the exchange of information between our organizations at the meeting of Tuesday, July 16, 2019, in San Antonio between the SDAMPP Executive Committee and the ABR Physics Trustees and Executive Director. We enjoyed this opportunity and look forward to continued dialogue and cooperation with the ABR on a variety of matters pertaining to medical physics education and certification.

Of particular urgency to our organizations is the proposed change to the requirements for examinees to register for Part 1 of the ABR exam in medical physics. To reiterate our understanding of the proposed change (as pertaining to ABR candidates from Graduate and DMP programs), the candidate must either be enrolled in a CAMPEP accredited graduate program or DMP program (candidate must be in good standing in the program), or have completed such a program. If the candidate applies based on enrollment in a graduate or DMP program, his or her program director must attest that he or she has completed the required CAMPEP courses at the time of application. This is more restrictive than the current requirements, namely, "To be eligible for Part I on a new application, candidates must be enrolled in and in good standing with, or have graduated from, a CAMPEP-accredited program (graduate program, doctorate in medical physics (DMP) program, certificate program, or medical physics residency). New applicants should review the ABR Audit Standards Policy for Initial Certification in Medical Physics."

The purpose of this open letter is to provide the ABR with feedback from leaders in medical physics education regarding the proposed change. This letter was prepared by the SDAMPP's Executive Committee, with consideration of comments from its membership at large (approximately 180 voting members), and reviewed and approved by the Officers and Board of Directors of SDAMPP.

In essence, it is our strong consensus opinion that the proposed change, if enacted, would be detrimental to graduate students, graduate programs, residency programs, the national match program, and research programs. We recognize that medical physics education is a complex enterprise and that it would be difficult for the ABR to anticipate many of the unintended consequences of the proposed change. In the spirit of the intersociety agreement of the ABR, SDAMPP, CAMPEP, and AAPM, we respectfully submit this letter for your consideration. From past experience, we are confident that by communicating and coordinating, our societies can continue to best serve the interests of students, programs, and the profession.

Our concerns with the proposed change are enumerated below.

1. The proposed change would unfairly disadvantage *MS students and Post-Doctoral Certificate students* seeking admission to residency programs. The curricula of many MS

degree programs are structured to allow students to complete their degree requirements within approximately 21 months after matriculation. For certificate students, the corresponding time is approximately 8 months. These structures and durations allow students to enter a residency training fellowship upon completion of their MS degree or Certificate. Currently, such students typically take Part I at the end of their first year in the program, at which point in time MS students have completed approximately 18-21 credit hours of graduate coursework and certificate students have completed all of the required courses. At this point in time, all students should have learned, in varying levels of detail, about most or all of the subjects covered in Part I. Specifically, the subjects covered on the general exam section of Part I focus on medical physics at the level of common graduate courses, and the clinical exam focusses on anatomy, medical terminology, physiology, radiobiology, and ethics and professionalism (https://www.theabr.org/medical-physics/initial-certification/Part I-exam). Students typically prepare for the examination on their own and most of them pass it. From 2015 to 2017, the pass rates of first-time Part I examinees ranged from 60% to 73% (https://www.theabr.org/medical-physics/initial-certification/Part I-exam/Part I-exam-results). Under the proposed change, students would have to wait an additional year to apply to and sit for Part I. Consequently, residency applicants from many MS programs would lack Part I results at the time of their applications to residencies. The outcome of Part I is anecdotally reported to be a major determinant of admission to many, but not all, residency programs. This is especially relevant in light of the extreme competitiveness for residency slots. For example, in 2018, 300 students graduated from accredited programs (273 from MS, PhD, and DMP programs, as well as 27 from post-doctoral certificate programs; https://www.campep.org/2018AnnualGraduateReport.pdf), whereas the number admitted to CAMPEP accredited residency programs was 178 (https://www.campep.org/2018AnnualResidencyReport.pdf). We believe students in all types of graduate degree programs should have equal access to this objective performance assessment.

2. The proposed change would jeopardize the recently established residency match system. The reasons for this are subtle. As noted above, the proposed change would reduce the competitiveness of MS students in gaining admission to residency programs. Many institutions with MS programs also offer a residency program (or are otherwise aligned with another institution that operates a residency program). These aligned programs would then have to find some solution that would allow their graduates to enter these residency training programs. Aligned programs would almost certainly revert back to "internal matching" of their students, as was the case prior to the introduction of the national match system. Alarmingly, recently released data from CAMPEP (https://www.campep.org/2018AnnualResidencyReport.pdf) revealed that 37 residency programs (among the 128 accredited programs) did not participate in the national match system in 2019. There is concern that further reductions in participation in this system could lead to its collapse. We worry that the proposed change would further deteriorate an already precarious situation.

3. The proposed change would require program directors to apply considerable interpretation and subjective judgement in attestation. Therefore, it will be difficult to ensure that attestations from different programs represent comparable levels of student preparation. According to material presented by Don Frey at the SDAMPP annual meeting in San Antonio in July 2019, "If the candidate is applying based on enrollment in a graduate or DMP program, his or her program director must attest that he or she has completed the required CAMPEP courses at the time of application." This statement lacks specificity in terms of the material completed (see the next item). In addition, we are unware of any corresponding proposed change to the ABR Audit Standards Policy for Part I of the exam. Thus, if the requirements are contested by the candidate, program director, or ABR, the standards by which to resolve the contention are apparently unavailable. Similarly, we are unaware of any instructions or guidance to program directors in preparing the proposed required attestation letters (*e.g.*, an articulation of "the required CAMPEP courses", including specific topics, subject areas or courses, as elaborated below).
4. The proposed change regarding completion of the "required CAMPEP courses" is ambiguous and possibly incorrect. A strict literal interpretation of "required CAMPEP courses" is that the ABR will require candidates to have, for all intents and purposes, completed all of the courses (including research courses, if applicable) required to obtain a degree from the CAMPEP program in which they are enrolled. At the other extreme, a liberal interpretation could mean two "required CAMPEP courses". From the context of our communications, we infer that the intended meaning is probably intermediate to these extrema, but the requirement, as currently stated, is remarkably vague. The ABR statement above, we believe, also incorrectly conflates "required courses" with "required topics". Specifically, CAMPEP states that "The structure of course work in a graduate education program in medical physics may be defined by the program but shall, as a minimum, include the topics listed below." (See Section 8 of the CAMPEP standards https://www.campep.org/GraduateStandards.pdf.) Thus, CAMPEP specifies curriculum content by topics, not by courses. Programs define their degree requirements, including courses, which vary strongly in structure from one program to the next. That is so say, while each accredited program offers a curriculum that covers all of the topics required by CAMPEP, these topics are taught in different courses at various program. Thus, we do not believe that a generic "list of courses" can be applied to individual programs regarding this proposed requirement.
5. The proposed change would make it more difficult for some residency programs to evaluate applicants. Many residency programs recruit MS students. Some residency programs consider sitting for and passing Part I of the ABR exam to be a key indicator of the seriousness of an applicant for a clinical career. Under the proposed change, residency programs would lose these indicators and thus might be disinclined even to consider the applications of MS students.
6. The proposed change would disadvantage MS graduate *programs* in recruiting students. MS programs depend on stable admissions to survive. If prospective graduate students fear that an MS degree is insufficient to successfully compete for a clinical residency

position, many will instead apply to PhD programs. Such fears may soon materialize, *e.g.*, based on recently released data from CAMPEP on the trends in acceptance rates of graduates from MS (68% in 2017 and 2018) and PhD programs (55% in 2017 and 96% in 2018) (https://www.campep.org/2018AnnualGraduateReport.pdf). This would, in essence, drive applicants away from the MS programs and toward doctoral programs, including those students who seek a purely clinical career. Even small declines in enrollment can negatively impact MS degree programs. The proposed change would likely suppress admissions to MS programs (as noted above) and thereby jeopardize their stability and viability.

7. The proposed change could negatively impact the research enterprise in medical physics. For the sake of discussion (and as described above), let us assume that the diversion of students from MS to PhD programs occurs (in principle, they could also divert to DMP programs, but there are only three DMP programs currently training students). In the long term, this diversion would waste scarce education and research resources overtraining students whose intention is to pursue clinical careers. This overtraining would increase the average cost per graduate and (in the absence of new funding) decrease the total number of graduating physicists. The latter effect would decrease the supply of future workers just as a "silver tsunami" of baby boomers retires. It could also shrink the number of medical physicists going into academic and research careers, jeopardizing the critical mass of this key pool of medical physicists.

In addition to the issues above, we are also concerned that the proposed change does not necessarily address the stated problem, namely, the declining average exam scores on Part I in recent years. We submit the following items for your consideration.

1. The majority of students pass Part I on their first attempt. Many program directors report that a majority of their students from their programs pass on the first attempt. In some programs, such failures are rare occurrences. Therefore, the moderate decline in pass rates (from 73% in 2015 to 60% in 2017) cannot be ascribed to a systematic problem associated with all students, graduate medical physics programs, or undergraduate education programs. Thus, in the absence of a systematic effect or even a clear understanding of the reasons for the slight decline observed, the proposed systematic changes appear inappropriate.
2. By the end of their first full academic year, students have typically completed 18 to 29 credit hours of required coursework. At this point, most students have had sufficient coursework and ample opportunity to prepare for all subjects included in Part I. For many students, the end of their first year is the ideal time to sit for the exam.
3. A potential reaction of MS programs would be to modify their curricula to compress all of the CAMPEP-required coursework into the first year. The only way to do so in a reasonable number of credit hours, which might be capped by institutional policy, would be to water down the curriculum. That would be detrimental to the students' overall education and, ultimately, would reduce the quality of ABR-certified medical physicists.

Lastly, we submit the following recommendations for your consideration.

1. Preserve the current policy and abandon implementation of the proposed change.
2. Understand the nature and underlying reasons for the declining scores on Part I. It will be important to identify the cause in order to develop and implement an effective solution (*e.g.*, looking at recent changes in undergraduate education, enhancing exam preparation instructions, ensuring students have enough time to prepare during graduate studies, making curricular changes at the graduate level, etc.)
3. Continue to consult and coordinate with SDAMPP on this issue and its resolution.

We thank you for your consideration and look forward to working with you to resolve this important issue.

Sincerely,

Beth Schueler, President-Elect (and acting President):

Ishmael Parsai, Chairman of the Board:

Richard Wendt, Treasurer:

Wayne Newhauser, SDAMPP Secretary: