

POINT/COUNTERPOINT

Suggestions for topics suitable for these Point/Counterpoint debates should be addressed to Colin G. Orton, Professor Emeritus, Wayne State University, Detroit: ortonc@comcast.net. Persons participating in Point/Counterpoint discussions are selected for their knowledge and communicative skill. Their positions for or against a proposition may or may not reflect their personal opinions or the positions of their employers.

Medical Physics residency programs in nonacademic facilities should affiliate themselves with a university-based program

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OVERVIEW

With the requirement that, by 2014, graduation from a Commission on Medical Physics Educational Programs (CAMPEP) accredited residency program will be necessary in order to become certified in Medical Physics by the American Board of Radiology, the number of such residency programs has been increasing dramatically. Although most of these programs are in universities, some are in practices that are not university-based. It has been suggested that such residencies need to be affiliated with university-based programs, and this is the premise debated in this month's Point/Counterpoint.



Arguing for the Proposition is Jatinder Saini, M.S. Mr. Saini obtained his MS degree in Radiological Physics from Wayne State University in 2010 and, upon graduation, became a Medical Physics intern at the Swedish Cancer Institute, Seattle, WA. He subsequently moved to his current position as a radiation oncology physics resident at Central Arkansas Radiation Therapy Institute, Little Rock, AR.



Arguing against the Proposition is Jason R. Sherman, M.S. Mr. Sherman obtained his MS degree in Medical Physics from the Toshiba Stroke Research Center, Department of Biophysical Science, State University of New York at Buffalo in 2008. During this time, he was Assistant Radiation Safety Officer at the Erie Community Medical Center, Buffalo, New

York and, upon graduation, he became a diagnostic radiology physics resident at Upstate Medical Physics, Inc., Victor, NY, where he became the first to graduate from this residency program in 2011 and is now a full-time employee.

FOR THE PROPOSITION: Jatinder Saini, M.S.

Opening statement

As the new 2014 board certification requirements approach, the number of medical physics residencies is rapidly increasing. While most of these residencies are based in large academic institutions or comprehensive cancer centers, a small number have opened in private practice or community hospital settings. The latter variety of residency may be problematic for the field of medical physics. Though accredited by CAMPEP,

they cannot provide their residents with the same breadth of experience obtainable in academic residency programs.

A private practice residency may indeed provide a suitable amount of clinical exposure. Even so, there are clear benefits to training in a large institutional setting where experts in a broad range of fields practice and do research. Generally, in an academic environment there are multiple ongoing research projects in which residents can participate, giving them the opportunity to learn and practice cutting-edge technologies. Residents are able to collaborate not only with faculty physicists and physicians, but also with medical residents, graduate students, and postdoctoral scholars. Moreover, opportunities for collaboration extend well beyond a resident's particular institution, as academic institutions frequently participate in scientific conferences and journal clubs. For all these reasons, the academic residency program provides the medical physics resident with a comprehensive training environment.

We also need to ask how nonacademic physics residencies might affect the perception of our profession. How often do we see physicians' residencies in private practice settings or community hospitals? In radiation oncology, for example, most medical residency training takes place in a university environment or in comprehensive cancer centers. Do we really want the public to think that medical physicists require a lesser degree of training than physicians? While having such residencies, we are relegating the training of medical physicists to the level of medical dosimetrists or radiation therapists rather than keeping it at a level comparable to that of physicians. Most medical specialties listed on the American Board of Medical Specialties (ABMS) do not train their residents in a private practice environment. The medical physics specialty, being part of ABMS, should also have similar pathways to practice.

Nonuniversity-based residency programs are addressing the pressing shortage of residency programs. In that sense, they are a step in the right direction. But these programs should associate themselves with established, university-based programs in their respective regions. In this way, a resource-sharing arrangement can be developed so that residents in these programs can participate in the activities of the large institution.

In conclusion, I believe that all private practice and small clinic-based medical physics residencies should become affiliated with larger institutions in their regions and, further, that the AAPM and CAMPEP should facilitate the development of such relationships for the greater good of our profession.

AGAINST THE PROPOSITION: Jason R. Sherman, M.S.

Opening statement

With a limited number of CAMPEP-accredited imaging residencies that are not affiliated with a university-based program, I feel it is appropriate that I discuss my experience at Upstate Medical Physics, the first and, thus far, the only CAMPEP-accredited Diagnostic Imaging Residency in a private practice consulting group. Not only was this program

deemed by CAMPEP reviewers to be strong in both didactics and clinical experience, but it is unique in that it prepares medical physicists for work in the rapidly-growing consulting environment.

Some may claim that a lack of affiliation with university-based programs limits the educational component of the residency and is thus more focused on revenue-generating work. Having completed my three-year medical physics residency with Upstate Medical Physics, I can attest that this is not the case. This unique program goes above and beyond simply training each resident to perform medical physics surveys. There is also a significant emphasis on the assurance of competency, continuing education, professional maturation, and development of the ability to handle any situation in a confident and ethical way.

All residents have a list of educational requirements they must adhere to throughout their three-year program. They are obligated to read and review four journal articles a month, including one continuing education credit from the AAPM Virtual Library. They are required to deliver quarterly presentations on a peer-reviewed article, participate in monthly staff meetings and attend monthly presentations by invited radiologists who share their knowledge, experience and collection of clinical images. Through the consulting practice, the Upstate Medical Physics resident has the unique opportunity of experiencing a diverse group of hospital and outpatient medical center settings, with a wide range of equipment. Additionally, residents learn how to conduct other essential professional duties which include participation in professional societies (AAPM, RSNA, etc.), teaching, contract negotiations, participating in Radiation Safety Committee meetings, working with regulatory and accrediting bodies, and assisting in the planning process for growing departments.

The Upstate Medical Physics Residency Program was designed as a three-year program in order to provide the broad clinical experience necessary to fully develop clinical medical physics expertise. The clinical training schedule begins with the fundamentals in radiation safety and radiologic and fluoroscopy work, then builds upon that foundation as the modules progress through the more complex modalities. A significant differentiating strength of this residency program is that the resident continues to work in each modality after each training module is completed. Over the three-year residency, this approach builds heightened competence through consistent experience.

Upstate Medical Physics has created a diverse residency program that incorporates all of the necessary ingredients to mold highly competent medical physicists.

Rebuttal: Jatinder Saini, M.S.

Mr. Sherman presents a solid case for the educational quality of his own residency. But it would be a mistake to assume that his admittedly unique program is representative of nonacademic medical physics residencies in general. Moreover, as strong as his residency might be, I maintain that it would still benefit from affiliation with a university or other research-oriented institution.

Reading journal articles, attending presentations and other such educational activities, are a great way to keep oneself abreast of the latest developments in the field, but they cannot provide the same depth of understanding as actual participation in research projects under the guidance of mentors. The practical nature of our field typically requires hands-on experience as well as theoretical understanding in order to acquire true mastery. Participation in a consulting practice like that associated with Mr. Sherman's residency can fulfill this requirement to some extent but many of the duties in such a practice are routine and do not develop the strength of insight one can acquire by helping to stretch the boundaries of knowledge with a research project. Thus, it will be ideal to have some research component in each residency program, most likely resulting in a publication.

It is also worth noting that the accreditation of any program by CAMPEP only ensures that the program meets certain minimum *clinical* training standards. According to the CAMPEP website, "*The goal is to ensure that a residency program provides rigorous and thorough clinical training in a similar fashion to that provided by medical residency training programs.*" Thus, CAMPEP accreditation does not evaluate institutions for any research training provided to residents.

Additionally, I would like to reiterate my original point about the public perception of the medical physics profession. There is more prestige involved with graduation from a university whose reputation extends beyond the local region. A private practice or community hospital may have a great local presence, but when graduates from such associated residency programs go out to work outside the local region, their expertise may not be valued as much as that of those who were trained in a university-affiliated program.

Rebuttal: Jason R. Sherman, M.S.

Mr. Saini raises some important points, a number of which I feel have been addressed in my opening statement using my own residency experience here at Upstate Medical Physics to support my case. With 100+ client facilities, the

residents here are given the opportunity to work with cutting-edge technologies, participate in research projects, and consult with a wide variety of medical personnel. The structure of our residency program conforms to the recommendations of the 1990 AAPM report "Essentials and Guidelines of Hospital-Based Medical Physics Residency Training Programs."¹ We have then taken it a step further to ensure that the program not only meets but exceeds these standards in the private consulting practice setting. Competency and experience is tracked using software called TYPHON (see Ref. 2), which is used by radiology residents across the country.

We have observed that most hospitals and private imaging centers use medical physicists in private consulting practices rather than full-time employees for their imaging physics services. Clearly, with the large proportion of jobs in the private practice service model, a residency program which is based in a private practice group is highly valuable to the residents since it is specifically suited to meeting the current and future needs of the diagnostic imaging medical physics community.

While being unaffiliated with an academic institution may change the "perception of our profession," why must it be in a negative way? A CAMPEP-accredited residency, university-affiliated or not, satisfies all of the requirements set forth by the accrediting body and should be equally valued. As with anything new, there is always skepticism and scrutiny, which is certainly warranted as we want to ensure that we are not settling for a "lesser degree of training." The requirements for what is needed to become a medical physicist are changing. It is only logical that medical physics residency programs evolve accordingly and offer the support needed to ensure the success of our profession.

The need for CAMPEP-accredited residency programs in the near future is a certain fact. I have shown that if designed properly, affiliation with a university-based program should not be required.

¹E. S. Sternick *et al.* "Essentials and guidelines of hospital-based medical physics residency training programs," (available URL: http://www.aapm.org/pubs/reports/RPT_36.pdf).

²<http://www.typhongroup.com/products/tracking.htm>.