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...of Radiation Oncology, Biology, and Physics

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Radiation oncology is an exceptionally multidisciplinary medical specialty, perhaps more so than any other. Indeed, how many medical specialties have an international journal devoted explicitly to three distinct disciplines which contribute to the whole? But is our “whole” greater than the sum of its parts, or are we merely three distinct disciplines working in the same medical specialty? In this brief opinion we assert that the future progress and innovation in radiation oncology depend heavily on our collaborative synergy, as does our relative contribution to the future of cancer care. As we consider our place in this future, we would be well served to consider how best to utilize our multidisciplinary resources and enhance our collaborative capacity. We believe this begins within our educational infrastructure.

Radiation biology and radiological physics are essential components of the educational infrastructure for radiation oncologists. However, these components are often taught largely

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The contribution of radiation oncology to the future of cancer research and treatment depends on how well we prepare clinicians and scientists to work together. One method to stimulate collaborative research is through the creation of short-term educational environments. An example NIH-funded course presented here has instigated a very substantial amount of measurable collaborative research and can serve as a model for the creation of other courses designed to promote interdisciplinary collaboration.

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There are NO actual or potential conflicts of interest for the work presented here.

within standalone frameworks and unincorporated into the context of clinical radiation oncology. Furthermore, no such standardized reciprocity exists to provide clinical radiation oncology training for medical physicist and radiobiology trainees. As such, each discipline is limited in its capacity to “speak the same language” as the others, and even where such language barriers have been overcome, we often lack the fluency necessary to establish the critical conversations needed to stimulate clinical and research innovations which would move our field forward. Weaving multidisciplinary education into the fabric of the educational infrastructure for each discipline will affect the way future professionals collaborate. Moreover, education is a lifelong process and we can affect our current workforce through the implementation of collaborative educational opportunities for those practicing already.

One way of achieving this is the creation of short-term collaborative educational environments such as the NIH-funded educational course developed at Wayne State University called “Integration of Biology and Physics into Radiation Oncology (IBPRO)” [1]. The relative success of IBPRO in fostering productive interdisciplinary collaboration and producing tangible research outcomes has been established through participant survey. For example, over 80% of respondents report approaching clinical dilemmas more collaboratively after participation in IBPRO and 10% report obtaining research funding for projects that they would attribute, in whole or in part, to participation in this course. Thus, substantial contributions to radiation oncology research and substantial changes in clinical practice can be effected in a relatively short time by such interventions. It is our hope that in the future, interventions of this kind within our profession’s initial and continuing educational infrastructures will facilitate a rediscovered focus on interdisciplinary collaboration in a way that is available to the greater radiation oncology community. We anticipate that such interventions will indeed make our whole greater than the sum of its parts as we forge the path for tomorrow’s research and education culture and define the future contribution of radiation oncology to the treatment of cancer.

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