Driving accountable care with brachytherapy

The Centers for Medicare and Medicaid Innovation (CMMI) recently outlined their vision for the next decade (1). Their goal is to implement value-based programs to reduce spending while preserving or enhancing quality of care. They've identified five strategic objectives to pursue over the next decade to help promote their value-based programs: drive accountable care, advance health equity, support innovation, address affordability, and partner to achieve system transformation. Radiation oncology is scheduled to enter Medicare value-based payments with the implementation of the Radiation Oncology Alternative Payment Model (RO-APM) in 2022 (2). While the current proposed model will exclude brachytherapy due to the risk of reduced access in the current model, there is still an urgent need to understand the impact of socioeconomics on the utilization of brachytherapy. It is anticipated brachytherapy will eventually be included in value-based models and helping policy makers better understand the complexities of brachytherapy as compared with external beam is vital to building a payment model that will incentivize high-value brachytherapy care.

This special socioeconomic issue provides insights on promoting value-based care. Andring et al. and Mukherjee et al. utilized national databases to evaluate utilization of prostate brachytherapy. They demonstrate declining use of both prostate brachytherapy monotherapy and combination therapy even while Level 1 evidence suggests a significant improvement in outcomes with combination therapy and cost-effectiveness of monotherapy (3,4). Treatment at an academic center was, unfortunately, significantly associated with decreased brachytherapy utilization. Similarly, Lu et al. present data from the National Cancer Database showing that external beam boost is particularly used in cervical cancer when patients are higher staged, which is where brachytherapy with interstitial needles is most likely to benefit them. These findings have implications for men and women seeking brachytherapy expertise.

Related to this, Bates et al. present a geographic assessment of access to brachytherapy throughout the United States. They report that amongst US metropolitan areas 28% have brachytherapy access while only 3% do in non-metropolitan areas. This geographic mismatch is critical for us to appreciate so further work can be done to advance health equity. Related to this, it is important that diverse populations are included in future brachytherapy clinical trials. Ladbury et al. evaluated the diversity of patient enrollment on previously published brachytherapy trials. They show while enrollment of diverse populations is in line with other non-brachytherapy studies, finding means to enrich future trials with more diverse populations is worthwhile.

Future improvements in driving accountable care and advancing health equity will require new innovations in care delivery and payment delivery models. To this point, time-driven activity-based costing (TDABC) presents a model for understanding costs of care from the provider’s perspective over an entire episode of care. Mulherkar et al. present a review of TDABC that provides insight into evaluating the points in the care delivery process that might be ripe for improvements in efficiency. For example, in prostate cancer, TDABC analysis shows an approximately 3-fold increase in attending time spent per relative value unit for brachytherapy compared to external beam radiation therapy. However, in a separate paper, Thaker et al. utilized TDABC to evaluate where in their low dose rate prostate brachytherapy workflow they could improve efficiency. They show that operating room expenses comprised about 40% of the overall total costs of care. Through new initiatives and incorporating advanced technologies such as MRI, they were able to implement personnel task downshifting to reduce costs at consultation, simulation, and surgery scheduling, while significantly reducing OR times by 22% and achieving immediate precise post-implant quality assessment. These TDABC insights offer additional context regarding barriers and opportunities for optimizing brachytherapy utilization.

As we shift from volume to value-based care, the care we deliver will be assessed from the perspective of the value it delivers to patients. Sustainability and our ability to innovate will be influenced by the incentives that new payment models will drive. Thaker et al. provide a timely analysis of the expected impact of the RO-APM on brachytherapy reimbursements. They show
brachytherapy monotherapy episodes would have average positive reimbursement in the model versus historical reimbursements (+$14,331 prostate, +$8714 uterine). For brachytherapy combination modality episodes there would be an average negative reimbursement in the model (−$557 prostate, −$4,996 cervical). While the most recent proposal of the RO-APM has taken brachytherapy out of the model, a better understanding of the complexities of reimbursement for monotherapy versus combination therapies will provide a framework for working on future reimbursement models that will inevitably include brachytherapy.

Lastly, Shah et al. provide an overview on accountable brachytherapy care by providing suggestions for quality-based metrics. The RO-APM includes quality metrics and clinical data elements as part of the reimbursement equation but little published data exists regarding brachytherapy specific metrics. This paper provides a starting point for establishing what these should be and what data may be necessary to validate these metrics.

CMMI has learned a lot during the process of initiating over 50 alternative payment models. Some of their key takeaways include equity as a centerpiece of every model, improving the management of downside risk by empowering providers to enable changes in care delivery, and encouraging lasting transformation through a broader array of quality metrics. It’s important to understand how these key takeaways are relevant to brachytherapy and how to leverage them to optimize value-based payments for brachytherapy. We have an opportunity to influence future iterations of the RO-APM in terms of how brachytherapy is included. We hope that this special Socioeconomic issue will serve as a foundation for understanding the unique issues surrounding brachytherapy reimbursement in a value-based world, that it provides a launching point for future research, and facilitates increased access and utilization for cancer patients.

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References