

Sustained Lung Cancer Radiotherapy Quality Improvement in a Statewide Collaborative Radiation Oncology Quality Consortium

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Purpose/Objective(s): Advancements in imaging and radiation therapy delivery have made it possible to provide more targeted treatment with less toxicity. With improved precision, the quality parameters required to deliver high level radiation become even more important. In 2011, a statewide collaborative quality initiative (CQI) was created focused on lung and breast cancer patients (later expanded to other select patient populations) to establish and disseminate best practice guidelines that enable radiation oncology practitioners to optimize the delivery of cost-effective care. Using an incentive participation program, various quality measures and targets were utilized to drive improvements. We report the impact of these measures on lung cancer quality care across a statewide CQI.

Materials/Methods: Using educational forums, in-person as well as virtual meetings, and establishment of a lung cancer specific working group, four time-limited measures for lung cancer radiation therapy quality improvement have been developed over the course of the CQI. These measures focused on 1) evaluation of lung tumor motion management, 2) tumor volume (GTV/ITV) definition as defined by the consortium, 3) AAPM TG-263 nomenclature compliance for heart and lungs, and 4) cardiac dose reduction (mean heart dose <20Gy while keeping target coverage >95%). The rate of compliance of these measures was evaluated prior to initiation of the measure and then annually. When consistent improvement in the measure is noted, it is no longer tied to the incentive participation program. Additional quality measures have been adopted over time.

Results: To date, 3846 lung cancer patients from 27 radiation treatment centers (academic and community practices) have been enrolled in this prospective observational database by over 125 participating providers. Adoption of lung motion assessment increased from 57% to 93%. Even after removal of the incentive component of this measure in 2018, the rate of compliance did not decrease (see figure below). Target volume contouring per guidelines increased from 83% to 96%. The current rate of implementation of nomenclature standardization per TG-263 is 98%. The cardiac dose reduction and tumor coverage measure increased from 44% to 85%.

Conclusion: Across a statewide consortium, we have seen a substantial improvement in radiation therapy quality metrics for lung cancer patients. The long term clinical ramifications of these improvements are being assessed by collection of cardiac and pulmonary toxicity outcomes.

