The Value of Performance Metrics in a Large Statewide Consortium: Using Planning Target Volumes Towards Improvements in Breast Planning

QUICK SUMMARY

- The Michigan Radiation Oncology Quality Consortium (MROQC) evaluated whether or not planning target volumes (PTVs) were created for patients who had undergone breast conserving surgery and radiation therapy.
- Over 9000 eligible patients were evaluated from 2012-2018.
- Although PTVs are recommended by ICRU reports, rates were only 35% in 2011-mid 2016.
- A performance metric implemented in 2017 raised rates to 78% that year and to almost 100% in 2017.
- Practice changes have been effectively made using metrics that also earn institutions money.

BACKGROUND

- This project involved 22 centers participating in our statewide consortium.

METHODS

- Baseline performance assessment at 22 institutions (2011-2016)
- Performance metric introduction (January 2017)
- Additional data collection: Expansion size (Aug 2017)
- Post-intervention performance assessment (ongoing annually)

KEY RESULTS

PTV planning rates more than doubled following intervention (before intervention: 2011-2016; and after: N=2364 which represents 2017 & 2018-Q1).

The rate of institutions delineating a PTV for their patients was evaluated by institution for 2016, 2017, and January-March 2018. Each institution increased their use of PTVs from their 2016 rate. For example, institution 10 changed from <5% to 100% in 2018.

Institutions continue to work on the practice change with about 60% of institutions (13) working to meet the intervention goal.

Comparing the 1st quarter of each year, the performance metric helped increase use of PTVs from an initial rate of 40% in 2016 to 60% in 2017 and 98% in 2018. Time was needed for institutions to implement the changes.

The median PTV expansion used by institutions delineating a PTV was 1 cm (range 0.1-2 cm).

CONCLUSIONS

- MROQC previously demonstrated the value of performance metrics to increase the use of hypofractionation (Jagsi, et al) as well as decrease the mean dose to the heart (Pierce, et al).
- Using a consortium-wide performance metric is an effective intervention, increasing the PTV delineation rate from 40 to 98% for the lumpectomy cavity for radiation therapy patients who have undergone breast-conserving surgery.
- This increase in PTV use will allow the consortium to make target dose homogeneity and coverage recommendations to weigh clinical tradeoffs between target and heart doses.
- MROQC has previously used performance metrics to increase the rate of hypofractionation (Jagsi, et al) as well as decrease the mean dose to the heart (Pierce, et al).
- Future work will investigate the relationship between lumpectomy cavity expansion size as a function of imaging frequency amongst consortium clinics to ensure adequate coverage of the high dose region.

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REFERENCES


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