

Evaluation of an automatic planning solution for breast cancer

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Disclosure

No conflicts of interest



Breast Cancer

- Breast cancer is the most common type of cancer among women.
- Whole breast radiotherapy is a standard therapy.
- Breasts are most commonly planned with tangential fields
 - Different techniques
 - Tangent Wedges
 - Field in field (Step and shoot)
 - IMRT
 - Irregular surface compensator







Irregular surface compensator Technique (ISC)



- 1. Radiation focus
- 2. Path of the irregular compensation surface, 50% penetration depth
- 3. Fanline rays



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Diagram from Eclipse help system

Motivation and Aim

- A large number of breast patients
- To see if there is a quicker solution to produce a standard Tangential breast plan
- Focus more on the more complex cases



Manual ISC planning



Automatic planning solution (EZ fluence)



Investigation

Manual ISC planning

VS

0 1 1 1 4 4 4 4 5 # # = 1 = 33 = 5 7 4 / 9 20 = 0 9 1 7 4 / 9 0 1 7 4 4 4 6 9 8 X * * * *





Automatic planning solution (EZ fluence)



USZ Universitäts Spital Zürich Universität Zürich

Method

Fourteen breast patients randomly selected

• 9 left sided & 5 right sided

Created manual ISC plans and EZ fluence plans.

Evaluated PTV coverage, dose to OARs and time taken to plan.





PTV Evaluation



PTV coverage slightly better & PTV Max significantly reduced on EZ fluence plans







No significant difference in OAR Dose between Manual ISC and EZ fluence plans



Planning time



Significant reduction in time when creating EZ fluence plans- 44mins vs 25mins



Conclusion

Our automatic planning solution > EZ fluence

More efficient planning
Quality plans
Consistant plans







Thank you for your attention

Thank you to my team at USZ for helping me with this project

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