An evaluation of two immobilization devices for head and neck radiation therapy at Universitas Annexe, Bloemfontein

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Background
- Statistical evidence
- Motivate for improved head and neck immobilization device

Research Objectives
- Set-up accuracy and reproducibility
- Movement in between R & L
- Angle of the spine
- Reference line

Aim of the study
- A comparative study between Device A, the current head and neck immobilization jig and Device B, a new custom-made thermoplastic mask immobilization device

Research Methodology
- Fifteen H&N
- “Blue print” on day 1 for the study is simulated
- Device A + B
- Template for the study
- Comparisons on blueprint

Research Methodology
- Simulation films sets of both immobilization devices were compared to the simulation film (blue print) of day one
- Measurements captured
- Classified as correct/incorrect
Results

- Ten films sets ideal
- 6 Film sets minimum requirement
- Total film sets 136
- 1 Film set x 4 = 544 total films
- 6 Sets of measurements per film = 3,264 measurements for the study

Accuracy comparison between Device A and Device B

Comparison of median values

Movement between R and L measurements

Discussion

- Comprehensive QA for Radiation Oncology: Report of AAPM Radiation Therapy Committee Task Group 40 (Kutcher et al. 1993:596) recommends 2-3mm
- Device A 10.3% correct
- Device B 14.3% correct
- Radiation doses just below tolerance doses of normal tissues - 5% higher or lower
- Each department unique, wide range of immobilization devices available

Conclusion

- Improved H&N immobilization necessity
- IMRT
- Radiation treatment with confidence
- Enhance overall quality of life
- Minimizing late radiation effects with a head and neck immobilization that is effective
- Enhance the quality of the radiation treatment
Thank you
Bibliography continued


