

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Based on the results of data analysis, the conclusions drawn from this study are as follows:

1. The irradiation time for the PS technique was 275.8 seconds, whereas the PBS technique required only 96.4 seconds.
2. The PBS technique demonstrated superior dose coverage to the PTV, achieving 95.2% compared to 94.7% with PS. Moreover, the PBS dose coverage falls within the ICRU-recommended range of 95% to 107%, while also resulting in lower radiation doses to OAR.

5.2 Recommendations

Based on the study Dosimetric Comparison of Passive Scattering and Pencil Beam Scanning in Carbon Ion Therapy for Gastric Cancer (A Particle and Heavy Ion Transport Code System (PHITS)-Based Case Study), several recommendations can be proposed:

1. The use of modern phantoms based on mesh or voxel structures enables more accurate dose calculations compared to the ORNL-MIRD phantom, especially when modeled according to the anatomical characteristics of the Indonesian population.
2. Consider applying multiple radiation beam angles to the cancer target aims to decrease radiation exposure to surrounding healthy tissues, enhancing both treatment safety and effectiveness.