Thesis Title : Computer Calculation of Dose for Irregularly Shaped Fields for Cobalt-60 Teletherapy.

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ABSTRACT

This project is concerned with improving the available dosimetric problems encounterd in the treatment of irregular shaped field, paying attention to the dosimetric problems in the treatment of Hodgkin's disease.

A computer program (IRREG-BAS) for calculation of dose in an irregular field for cobalt-60 has been written in BASIC for personal computer The dose to each point is calculated as a summation of primary and scattered radiation components. The primary and scattered radiation components used in the caculation are derived from stored zero area tissue air ratio (TAR) and stored scattered air ratio (SAR) respectively.

The correction for surface curvature is included in the program but tissue heterogeneity correction is not considered. The program is suitable for every shape and size of radiation fields.

Comparison of the depth dose of Mantle field determination using experiment and calculation by program computer showed a discrepancy of $\pm$ 8%