AbstractID: 4605 Title: A graphical user interface for a superficial x-ray treatment time calculator

Purpose: A new superficial treatment time calculator program was devised to provide a convenient platform for the radiation staff in superficial x-ray radiotherapy. This program has the following features: (1) Graphical user interface (GUI) to provide a user-friendly front-end window to the user; (2) A flexible, password-protected database; (3) An irregular cutout calculator to calculate the Peak Scattering Factor (PSF) of an irregular field; (4) Simplified import of the irregular field image to the calculator; and (5) Patient treatment record printing as an electronic file or hardcopy.
Method and Materials: The calculator program was written using Microsoft Visual Basic.net framework and adapted to the Gulmay D3150 superficial x-ray unit. Dosimetric information such as PSF and OF tables were needed for each treatment energy. They were measured and input to the database. The predicted and measured dose in the commissioning should be smaller than ± 2%.
Results: The GUI and "HELP" menu made the user easier to calculate the treatment time compared to using forms and tables. It also reduced training time and human error. Physicist can setup, input and delete treatment beam in the database, which is password protected. For the irregular lead cutout, an irregular field calculator routine is associated with the software to determine the PSF using sector-integration algorithm. The user only needs to prepare a JPEG file of the irregular field printout using a scanner and import such graphic file to the calculator to determine the PSF.
Conclusion: A treatment time calculator program using GUI technique was made in the Grand River Hospital. Such a program aims at providing a convenient way for the user to calculate the treatment time and keep a record. It is concluded that such calculator can reduce the man-hours and increase the efficiency in the superficial x-ray treatment.