

## PRACTICAL APPLICATION OF VALUE-ADDED INTRANET ON RADIOTHERAPY MACHINE IN QUALITY ASSURANCE

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**Purpose** : To assure the radiation treatment accuracy, the quality assurance of radiotherapy machines is an important issue. Currently, in VGHTPE Hospital, daily manually calibration and documentation on each radiotherapy machine have been used on quality assurance, which is time consuming while performing data integration and transformation inter machines. Therefore, we set up an intranet system to perform automatic calibration and integrate database to shorten the processing time of quality assurance meanwhile acquire up dated and complete report after all the procedures have been done.

**Material and Method** : 1. Design WebPages in data transformation and integration, use Microsoft visual basic 6.0 and Borland C++ builder 4.0 to design intranet webpages for treatment machines. There are two modules (therapeutic technique and mechanical quality assurance) installed on each treatment station, and the tolerance tables are well defined. 2. In running the daily calibration, design a virtual water solid phantom (water-equivalent) to acquire the energy distribution and decide the depth of the ion chamber. According to the size of the build up cap of the tested ion chamber to decide the size of the cylinder. The size of build up phantom is 30 cm by 30 cm and the depths are varied. By using these devises, we can run the tests on the daily radiation output stability, x-ray stability, beam flatness and asymmetry, optical range-finder, portal accuracy and laser beam alignment and all the data are recorded.

**Result** : Obtaining and transferring all of the data mentioned above from various treatment machines to the main sever, we could integrate data and formulate reports at daily, weekly, monthly and annually bases and further plot histograms according to different requirements. By performing these procedures, we could assure the quality of the treatment machines and build detailed database for property analysis.

**Conclusion** : While we emphasize the quality assurance of radiotherapy, the quality assurance of treatment machines becomes the most important issue. Therefore, via practically use computer network system in quality assurance of radiotherapy machines is the most effective way to reach the goal of better quality assurance.

[Therapeut Radiol Oncol 2000; 7(3):193-200]

Key word: Value-Added Intranet, Quality assurance system, Solid water phantom