

AbstractID: 8412 Title: The Development and Implementation of the RadioTherapy Information Management System (RTIMS)

Purpose: To develop a RadioTherapy Information Management System (RTIMS) as a secondary database system to supplement the Varian VARIS™ to meet the special needs of a radiation oncology department. **Materials and Method:** A server was used to run a database and web service of apache+php+mysql over twenty workstations. The same server provided supports to the RTIMS web service with Internet Explorer to input, search, count, and print patients' data. The following functions were designed in the RTIMS: 1.User account management; 2.Patient follow up card; 3.Electronic patient history, record, and summary; 4.Multi-course for each patient; 5.Patient charge statistics; 6.Workloads statistics; 7.Bulletin Board System (BBS) for communicating among all staff; 8.Log editing; 9.Approve/Unapprove functions. To protect the integrity of database, all the data can be set as either read-only or editable. **Results:** Different user groups were successfully created and tested with their designed user rights and options. The electronic patient history, record, and summary were validated by comparing double-sided printout on the paper in the standard format with the doctor's handwritten signature. Various types of workload data (such as Linac, TPS, CT-Sim, etc.) were successfully input into the RTIMS and tested for its editable type (read-only or editable). Statistical analysis of workload was conducted and was found to be accurate and efficient. The correlations among data tables in the database and their default values were evaluated and found to meet the design criteria. Fourteen months after the implementation of the system, approximate 750 patients' data were recorded in the RTIMS. The system was demonstrated to be user-friendly and was proven to significantly improve the efficiency of the department. **Conclusion:** A RTIMS has been successfully developed and clinically implemented. Since it is an in-house developed system, much functionality can be added or modified to further enhance its potentials in research and clinical practice.