A Web-based Research System for Outcome Analysis of NSCLC Treated with SABR

The new trend of information technology in medical imaging and informatics is towards the development of an electronic patient record (ePR), in which all health and medical information of each patient are organized under the patient’s name and identification number. Consequently, the patient-centric ePR provides support for the hospital- or clinical-based healthcare information systems [1]. For this project SABR-based ePR will combine Picture Archiving and Communication System (PACS) image data with other clinical related data utilized in therapy treatment to facilitate further medical research, education, and clinical services. The prototype of the software system will be adopted to specifically fit the SABR data set requirements [2].

Figure 1  The Architecture of the SABR-based ePR and Its Data Flow Model. KB stands for knowledge base and GUI stands for graphical user interface.

The data flow shown in Figure 1 depicts roadmap of how patient data will be consolidated to provide evidence-based results. (A) The Data Gateway is used to receive data. (B) The ePR Server has the storage and database to archive and quantify stored data. (C) The Decision Support Tools give users the ability to analyze and interact with treatment plans and patient data to evaluate and correlate relevant parameters with treatment outcome. (D) The Visualization Module contains all GUI for user interaction in data acquiring, data storage and display and decision support tools. This system will allow us to manage and evaluate patient clinical data and dose delivery across institution. Various dose calculation algorithms will be employed using the Eclipse TPS.

References:


[2] Anh Le, Mining an EPR system using a treatment plan navigator for radiation toxicity to evaluate proton therapy treatment protocol for prostate cancer, PhD dissertation, Faculty of the USC Graduate School University of Southern California, August 2010.