AbstractID: 8415 Title: Collection and Development of Relational Organization of Radiation Treatment Plan Data from a Commercial Radiation Treatment Planning System

Purpose: The goal of this work is to automatically collect and organize treatment planning statistics on a large number of patients for retrospective analysis.

Materials and Methods: A relational database was deigned to include all the metrics associated with treatment planning including: doses, volumes, beams, ROI shapes, prescriptions, IMRT constraints, and patient demographics. An interface was created to automatically populate the database from a commercial radiation treatment planning system (Pinnacle^3, Philips Medical Systems, Milpitas CA). Outside of the internal scripting language of the treatment planning system, all essential components operate on open-source software. Since this was implemented on an open-standards client-server database, multiple options are available for data mining. We have currently implemented a web interface to view the database contents and provide analysis tools.

Results: A full treatment plan is evaluated and exported within just two minutes. Several major versions of the treatment planning system are supported by the export components of the system. Dozens of plans have been exported into the database, demonstrating full functionality and reliability.

Conclusions: Previously, gaining access to certain plan statistics and data required the time-consuming tasks of manually loading a plan, navigating its contents, and transcribing target information. These tasks can be eliminated by utilizing this database to store radiation treatment plan data. The overall concept and utility of the complete system has generated great interest, benefiting it with enhancements and refinements even prior to a large-scale deployment.

AbstractID: 8415 Title: Collection and Development of Relational Organization of Radiation Treatment Plan Data from a Commercial Radiation Treatment Planning System

This work has been supported in part by a Sponsored Research Agreement with Philips Healthcare.