Electronic Infrastructure for the Abstraction of Radiotherapy Data for the Assessment of Quality of Radiotherapy.

High level summary:

To provide an environment where clinical data, treatment plan data and outcome data can be collected in structured form during routine clinical practice. All this data is stored in an analytical database with web-based forms and dashboards for comparison with national benchmark data for clinical quality control, decision support and retrospective / prospective translational research.

We plan to implement disease site specific clinical templates which physicians would use with a goal to minimize the impact on the workflow and insure that the physician - patient interaction is not disturbed by this system of data collection. All clinical data such as staging, risk group, diagnostic test results, performance scores, toxicities will be recorded in a structured format. In addition, we will utilize scripting in Eclipse to acquire 3D planning data and store them in the database designed for inter-patient plan comparison, quality control etc. Furthermore, we will be gathering patient quality of life data.

With the help of the analytical database, dashboards will be established displaying toxicity data for select group of patients based on diagnosis and staging enabling input to physicians to monitor the various toxicity rates of their clinical patients in real time. Similar group of patient could be analyzed with the treatment planning data on their dose distribution and distance between the targets and clinical organs at risk. With this system we might be able to show correlation between certain characteristics of DVHs and toxicity levels.

The overall goal is to integrate accurate data collection into the clinical process and gather structured clinical, dosimetry and treatment data and to provide tools to easily recall these past experiences to eventually impact the care of new patients.