

AbstractID: 8522 Title: Architecture and Development Issues that Effect Treatment Planning Performance

Purpose: Evaluate and compare treatment planning systems from different vendors. **Methods and Materials:** Prostate, lung, and head and neck treatment plans were generated on systems from three different vendors using identical CT scans, beam arrangements, and margins. Comparisons were made concerning the available tools, ease of tool use, flow of the planning process, and tool integration. **Results:** The list of available tools was remarkably similar for all three systems however the tools functioned considerably different. Some differences existed with respect to the degree of automation and manual over-rides. Large differences were observed in the planning efficiency and flow of the planning process. From the user's perspective, the architecture of long legacy systems with large customer bases appeared to use a linear model with multiple workspaces. The system with the shortest legacy and smallest customer base appeared to use a task oriented model with a single workspace. Several potential factors that could contribute to these differences were identified. These factors may conspire to prevent deep integration of cohesive tools thus limiting planning efficiency. **Conclusions:** Before purchasing a system, customers should evaluate the cohesiveness of tools, integration of tools, degree of automation, and workflow. Occasionally, vendors need to "bite the bullet" and revise their systems to ensure the various tools are integrated together in a cohesive fashion that promotes efficiency of the planning process.