Purpose: To develop an easy-to-use and customizable Patient Scheduling Monitor for 1) active monitoring of radiation therapy workflow from CT simulation to the start of treatment and 2) for optimizing the workflow based on treatment complexity.

Methods: Microsoft Access database and Visual Basic language were used to create an in-house software application, Patient Scheduling Monitor (PSM). The PSM was designed with three functional modules: a patient schedule calculator, a workflow progress tracker, and a workflow evaluator. The PSM divides the radiation treatment workflow into 6 tasks including image acquisition/fusion, target delineation, dosimetry planning, MD review, physics QA and RTT QA. On the day of CT simulation, the scheduling calculator generates a planned timeline for each task based on the CT-simulation date and the default standard established for each given task and treatment type. Each task within the PSM can also be individualized as needed. After simulation, the progress tracker enables staff to actively monitor the workflow. The workflow evaluator will query the database and analyze the planned versus actual timeline and provide data for future workflow analysis.

Results: We have used the PSM since Nov, 2011 for 186 patients. The PSM has allowed us to provide patient start times at the completion of simulation. It has helped to improve patient satisfaction. The workflow progress tracker enabled us to actively manage the workflow. Currently, for patients managed using the PSM, no rescheduling has been required. The use of PSM has reduced the average CT simulation to treatment start times. It also has improved intradepartmental communications.

Conclusions: An easy-to-use patient scheduling monitor has been developed. The PSM has been shown to be an efficient and effective tool in managing, assessing and improving the radiation therapy workflow and will be useful in managing the timelines in an increasingly dynamic working environment.