

# Improving Delivery of Same-Day Radiation Treatments

## The Problem:

Radiation therapy is often given to patients with severe pain or other urgent symptoms on the same day as treatment mapping, or “simulation”. However, doing so reduces the time usually allotted to quality-assurance measures and hence could increase the risk of errors. Scheduling the start of treatment unrealistically soon after simulation also may increase stress levels on physics and dosimetry staff, therapists, and nurses.

## Aim/Goal:

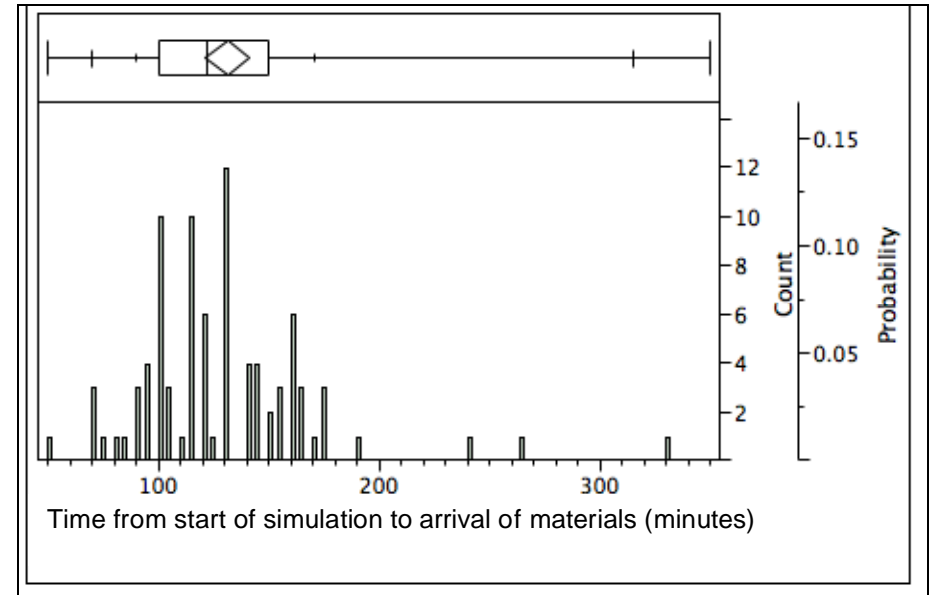
To study prospectively: 1) the amount of time required to complete each step of the process of the “same-day sim-and-treat”; 2) to identify where bottlenecks and errors occur; and 3) to determine the minimum amount of time needed between simulation and treatment appointments to avoid rushing the process in a way that would increase the risk of errors.

## The Team:

- Robert Morse, Chief of Dosimetry, Dept of Radiation Oncology
- Ed Holupka, Chief of Physics, DRO
- Denise Monks, Quality Improvement Coordinator, DRO
- Jason Morneau, Acting Chief Therapist, DRO
- Jo-Ann Barletta, Director of Clinical Operations, DRO
- Abram Recht, Chair, Quality Improvement Committee, DRO

## Results:

From January to August 2007, data was obtained on 88 patients. The median time from the scheduled start of simulation to arrival of the completed materials at the treatment machine was 122.5 minutes, with 90% of cases completed within 170 minutes (see the graph). There were no substantial differences in the time to complete this overall process or its different components for different treatment sites (whole brain, spine, etc). No relationship was found between the total time and the risk of having one or more discrepancy on a case (i.e., an error caught before treatment was given), which however may have been due to the limited number of cases.



## Actions Taken:

Our policy on the same-day sim-and-treat was changed in November 2007:

- Patients may be booked to start radiation treatment no sooner than 3 hours after the scheduled start of simulation.
- Any patient scheduled for simulation at 2 PM or later will be treated by the on-call therapist. The treating attending physician or resident will be required to stay in the department for this treatment if performed after normal working hours.
- The nurses coordinate between the simulator and treatment-machine therapists to determine whether materials might be ready earlier than planned, so that inpatients could be sent directly to the radiation oncology department, rather than back to the floor.

## Experience Since the Change and Future Plans:

So far this policy has reduced the pressures felt by the therapists and dosimetrists when dealing with patients undergoing same-day simulation and treatment. We are now prospectively collecting data to evaluate if this policy also reduces the number of discrepancies.

