

INTRODUCTION

At Northwell Health, all steps for framed Gamma Knife treatments for most cases are completed on the same day.

The planned treatment time depends on such parameters as the number, size, location, and shape of the lesions.

The planned treatment time is not completely known until the day of treatment.

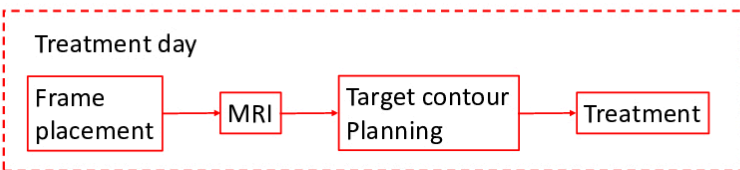
It is difficult for the department to schedule patients and budget therapist time to cover the treatment.

AIM

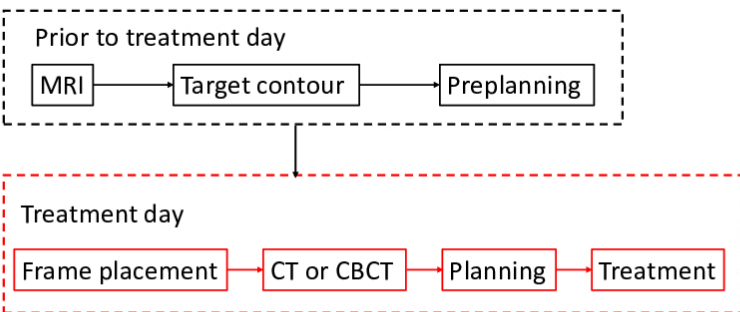
- Study the time required for framed Gamma Knife patients to complete treatment
- Identify the steps that delay treatment delivery
- Improve the workflow efficiency and patient experience

METHOD

Workflow 1: 13 patients



Workflow 2: 3 patients



Time for each step was recorded and analyzed.

RESULTS

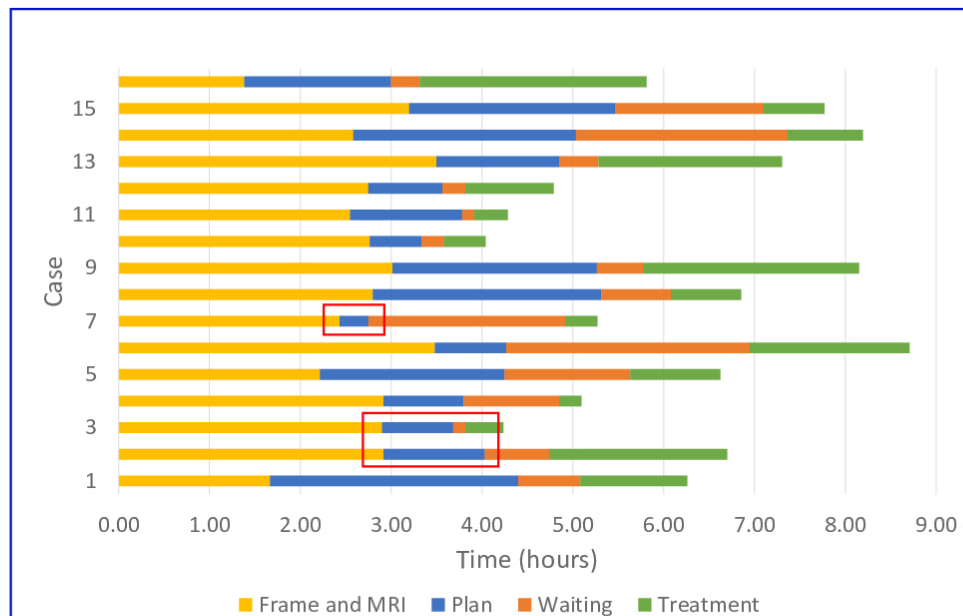


Figure 1. The time spent for completing each step during the treatment for each patient.
Plan – time spent to develop a treatment plan
Waiting – patient waiting time to get treatment after plan approval
Cases highlighted in red rectangles were treated with workflow 2. The rest were treated with workflow 1.

Table 1. Average plan time for cases with and without preplanning.

Preplan	Plan time (minutes)
Yes	44
No	99

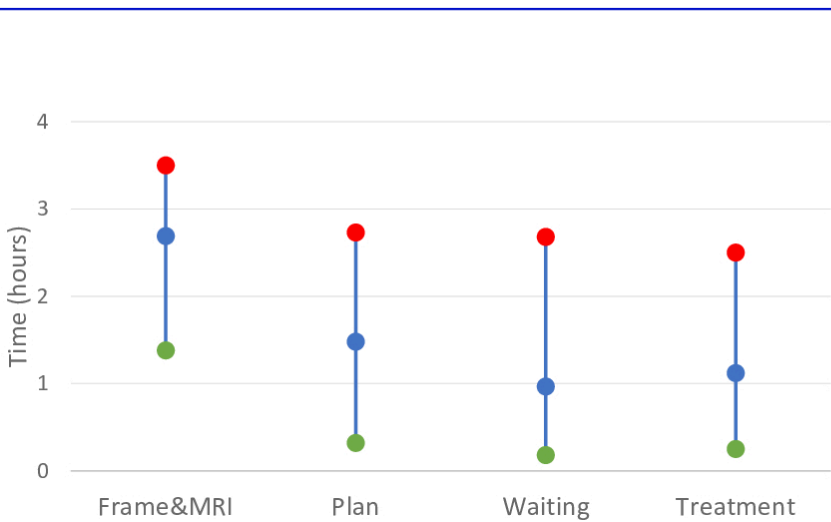


Figure 2. The minimum, maximum and mean time spent for each step.
Frame placement and imaging combined took the longest time.

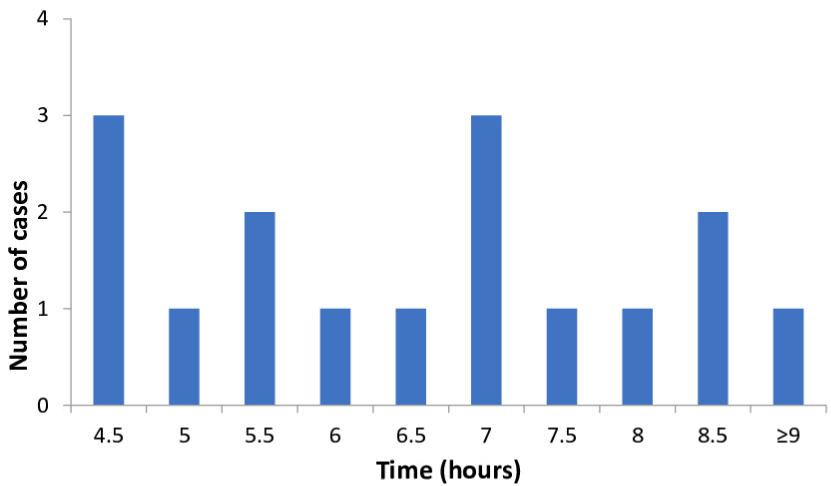


Figure 3. Number of cases as a function of patient in-hospital time.

CONCLUSIONS

- The total time in clinic before treatment completion varied from 4 hours to 8.7 hours with an average of 6.25 hours.
- Improving our workflow efficiency requires more efficient collaboration of the entire Gamma Knife team including neurosurgeon, MR technician, nurses, radiation oncologist, physicist and therapist.
- The majority of the treatment day is spent in frame placement/MRI completion/treatment planning.
- We propose pre-planning as a method to improve efficiency.

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REFERENCES

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