Waiting and treatment time analysis for radiation therapy treatments

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Introduction

The aim of this study was to determine whether the waiting time and treatment time for the patients in our radiation oncology department was within a reasonable margin and therefore be able to identify problems related to this matter.

Materials and methods

Patient treatment and waiting times were analyzed for a total of 3937 appointments during the last 3 years in three linear accelerators (Agility, Synergy and Infinity).

With Elekta's MOSAIQ Radiation Oncology information system (version 2.60, IMPAC Medical Systems), all patient information is collected and accessible, so you can create exhaustive reports.

For this study a report including arrival time, waiting time, treatment time and total time in the department was created for all radiotherapy treatments.

Agility and Synergy are located in the same site, but Infinity is in a satellite location. Agility machine is dedicated mostly to VMAT treatments, meanwhile Synergy carry on only 3D treatments and Infinity performs VMAT as well as 3D treatments.

Results

Mean total treatment time was 15.1 minutes; median was 13.9 minutes. On average, patients arrive 30.5 minutes before the scheduled time. Therefore mean total time in the department was 45.6 minutes.

Figure I shows the median, mean, upper quartile and lower quartile for the total, waiting and treatment time in each machine.

In addition, for each machine:

-Agility: 1214 appointments. A 9.6% of the appointments arrived late.

-Synergy: 1541 appointments. A 9.4% of the appointments arrived late.

-Infinity: 1182 appointments. A 21.9% of the appointments arrived late.

Figure II shows the distribution of arrival time for each machine.

Figure I. Times for each machine.

Figure II. Distribution of arrival time.

Conclusions

In summary, patient waiting time and total time are very similar for the three machines. Despite the fact that all VMAT treatments have a daily cone beam CT for patient positioning; mean treatment time for Agility is similar to the other machines which perform less VMAT treatments.

Furthermore, many patients depend on public/private transport to arrive to their appointments; Infinity machine has the higher rate of late appointments, which could be related with a problem in the transport system.

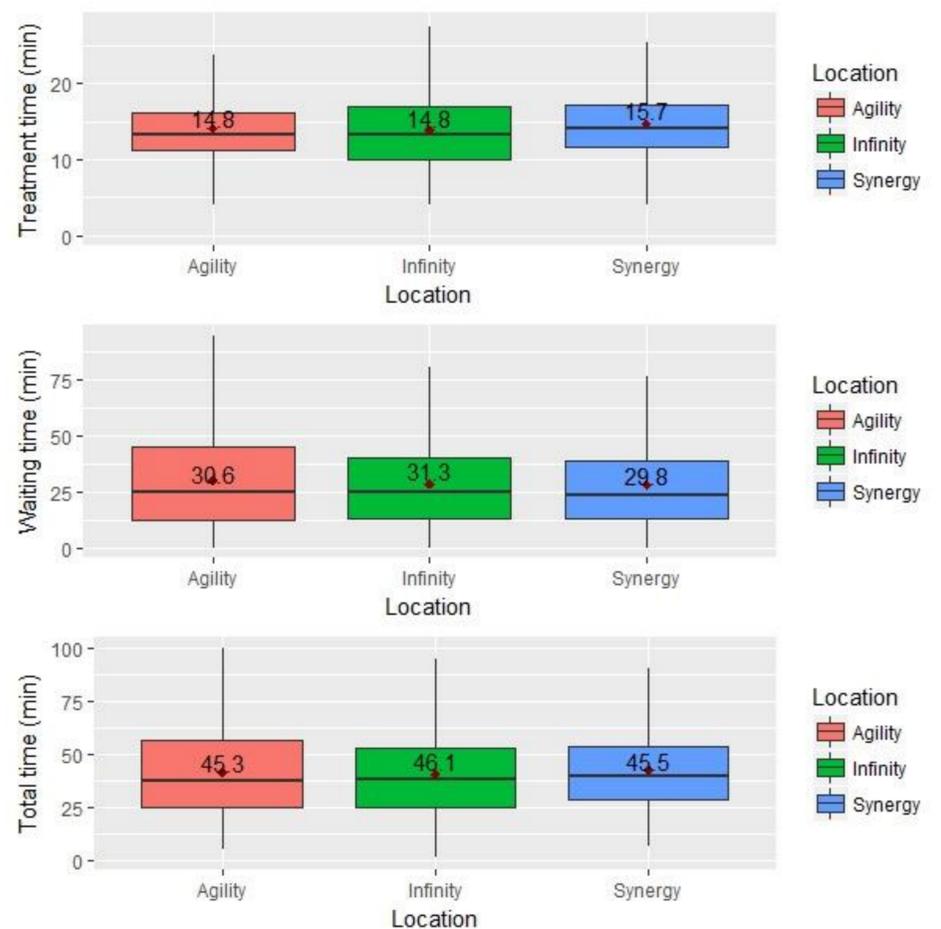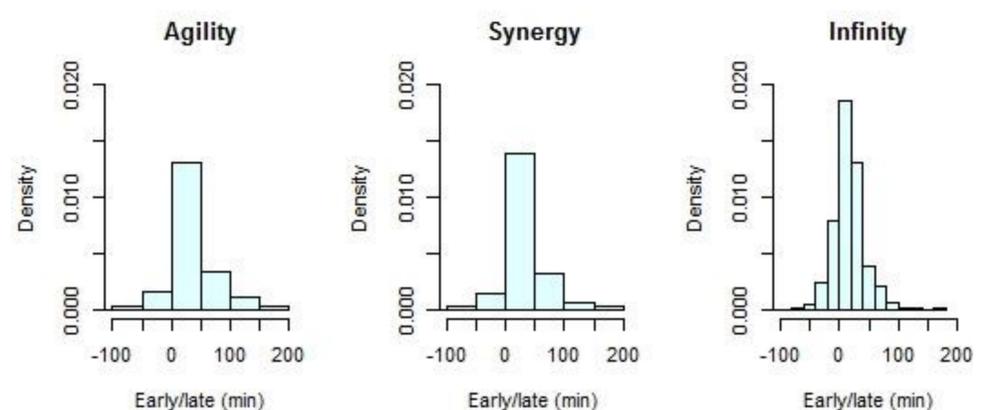Therefore these results not only provide feedback but also could allow detecting problems and consequently improving waiting times for the patients.