PRODUCTIVITY ANALYSIS OF AN AUTOMATED COMPOUNDING SYSTEM FOR INTRAVENOUS ANTINEOPLASIC TREATMENTS

3PC-027

Riestra AC, Tamés MJ, Olariaga O, Cajaraville G.
Fundación Onkologikoa, San Sebastian, Spain

OBJECTIVES

Analyze the productivity of KIRO Oncology®, an automated antineoplastic preparation system, since the installation of this new generation automated compounding system in the hospital.

MATERIAL AND METHODS

Productivity data on chemotherapy preparations completed in KIRO Oncology between the 4th of April 2016 and the 16th of August 2018 were downloaded from KIRO Link, a web-based application that provides compounding details and productivity reports.

Productivity of KIRO Oncology was analyzed by looking at the evolution of overall production, speed and number of compounded active ingredients throughout time, by identifying which cycle types presented higher speed and autonomy, and by analyzing if the experience of users had an impact on preparation speed and manual time required.

RESULTS

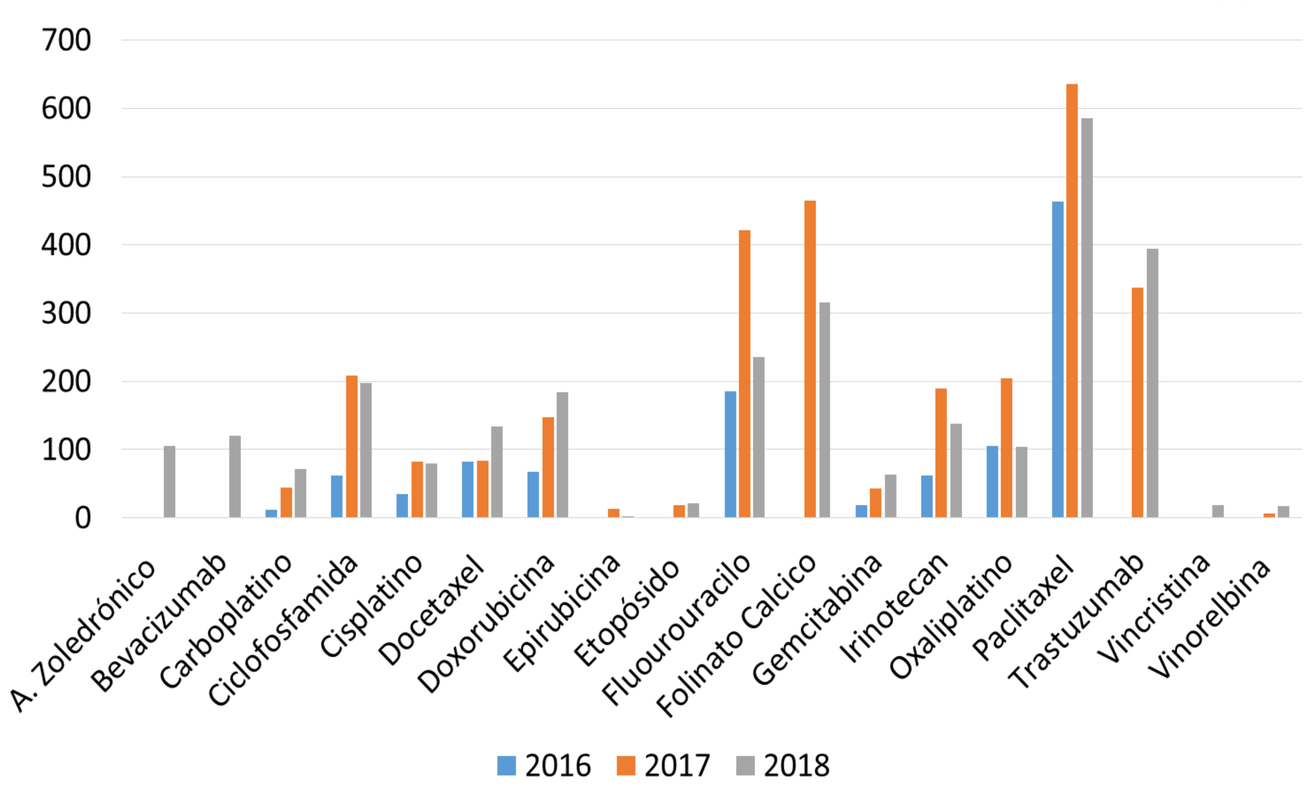

Figure 1. Evolution of the total number of preparations per active ingredient.

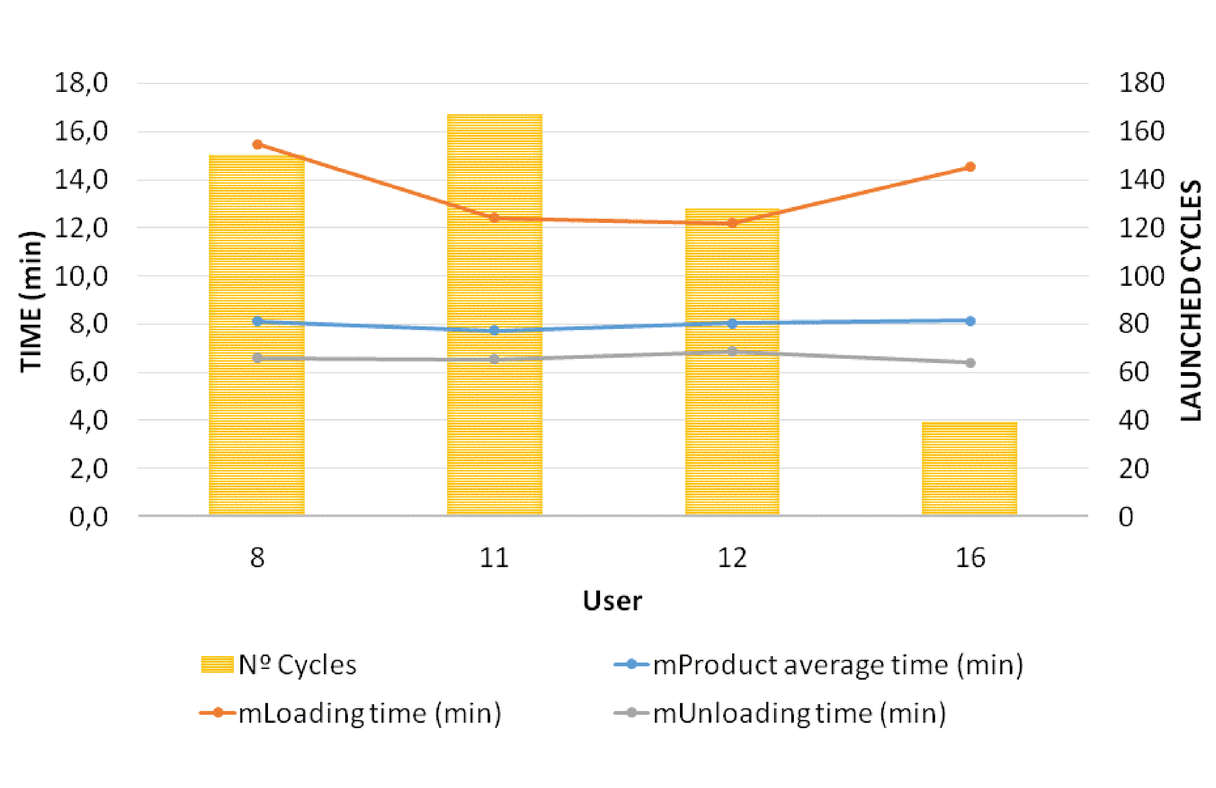

Figure 2. Mean time per preparation, and mean manual loading and unloading time per cycle, of the users according to their experience, represented as the number of cycles each user launched in the robot.

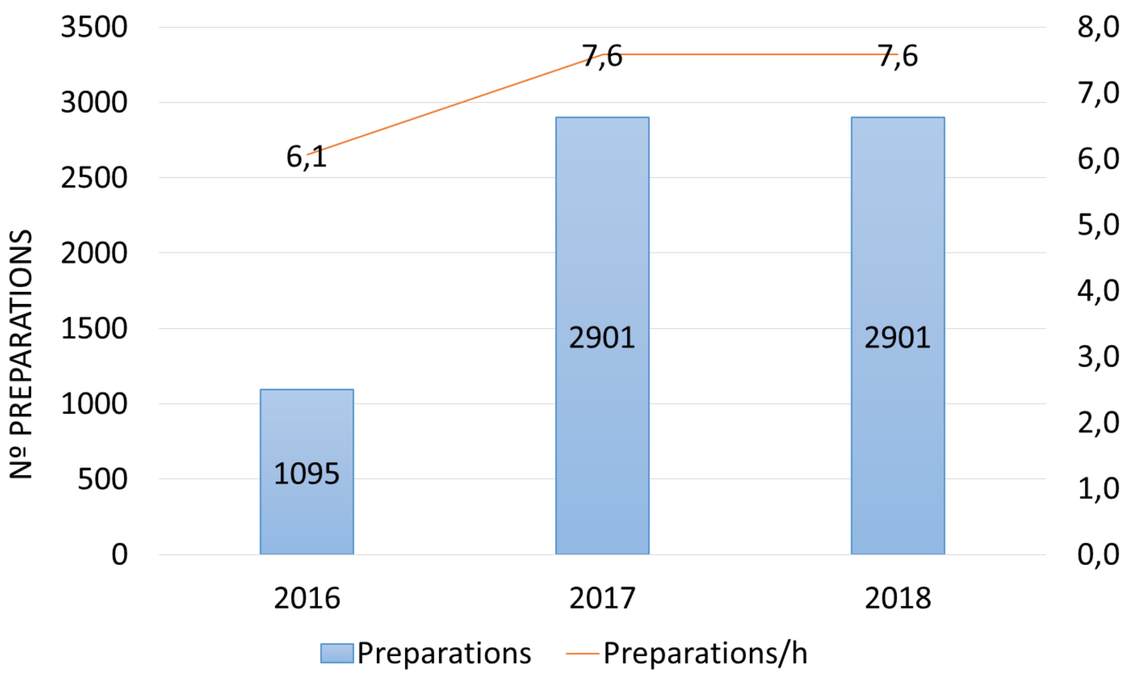

Figure 3. Evolution of the total number of preparations and mean preparations per hour.

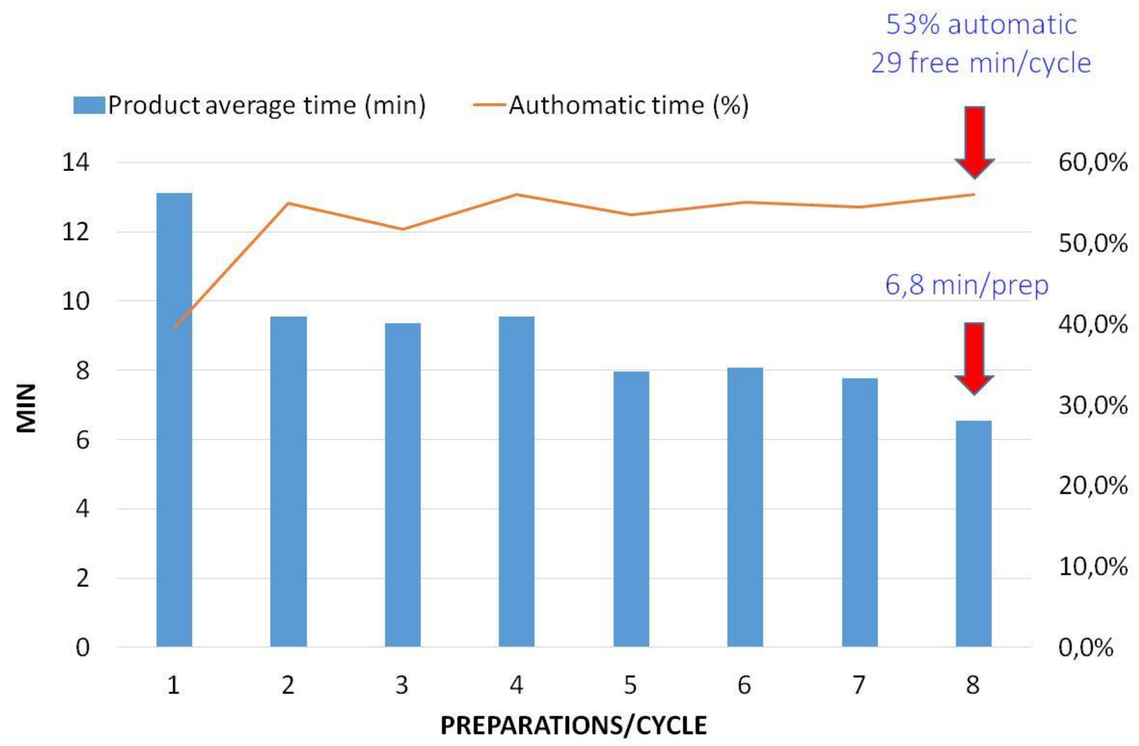

Figure 4. Comparison of mean preparation time and mean percentage of automatic time per cycle according to the number of preparations per cycle.

DISCUSSION

Since it´s implementation in 2016 the number of mixtures prepared with KIRO Oncology® has increased. In 7,5 months of 2018 the number of preparations completed was the same as in 12 months of 2017, which represents a production increase of 160%. Additionally, the mean number of preparations per hour increased up to 7,6 by year 2017. The number of drugs compounded in the automated system also increased. In 2016, 10 drugs were compounded in KIRO Oncology, increasing to 15 in 2017 and to 18 in 2018, being Paclitaxel the most frequently prepared drug in the three years.

The mean time per preparation did not vary with the experience of the users, even for users with a low number of cycles launched.

Our analysis identified that speed and autonomy of the automated compounding system were affected by the number of preparations per cycle. Cycles of 8 preparations, maximum loading capacity for bag preparations, presented a speed of 6,8 minutes per preparation and 53% of the cycle time corresponding to the automatic compounding process, which provided 29 minutes of device autonomy and user availability for these cycle types.

CONCLUSIONS

Productivity outcomes on the use of KIRO Oncology in our hospital present a positive evolution. Preparation speed does not depend on user experience and can be optimized by increasing the amount of preparations per cycle. Autonomy of the automated compounding system provides user availability to increase overall productivity of the pharmacy compounding unit.

http://www.eahp.eu/24-3PC-027