

# PERFORMANCE ANALYSIS OF A FULLY AUTOMATED ONCOLOGY PHARMACY PRODUCTION: A 2018 UPDATE

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24<sup>th</sup> Congress of the EAHP  
27<sup>th</sup> - 29<sup>th</sup> March 2019

## BACKGROUND

The aseptic compounding of injectable anticancer drugs is centralized in the Oncology Pharmacy and, since 2014, is performed by using a fully automated platform that enables control of the whole production activities. The platform includes a robotic system for fully automated preparation (APOTECAchemo), a

supporting device for manual compounding (APOTECAs), and a workflow management software (APOTECAMANAGER). The production is mainly just-in-time (80% outpatient and 20% inpatient) and performed in a Class C cleanroom by five pharmacy technicians and two pharmacists. The daily working

time is from 8am to 4pm (Monday-Friday) and 8am to 1pm (Saturday).

The aim of this study was to analyze the performances of the fully automated oncology pharmacy production.



## MATERIAL AND METHODS

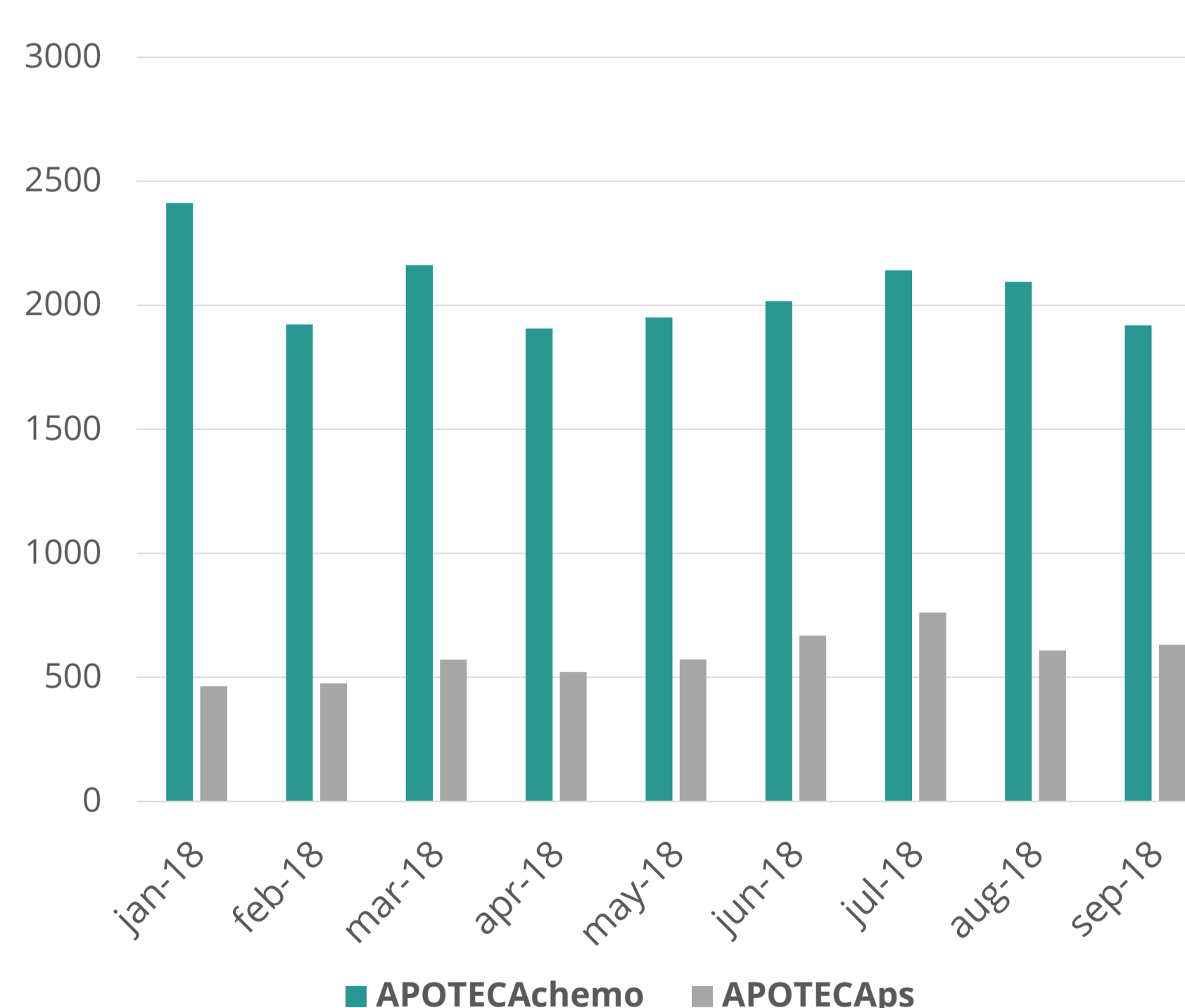


The performances were analyzed by means of the statistical tool of the APOTECA platform over a period of nine months (January-September 2018). Productivity, dosage accuracy, precision, and turnaround time were measured and compared between automated preparation with APOTECAchemo and manual preparation supported by APOTECAs.

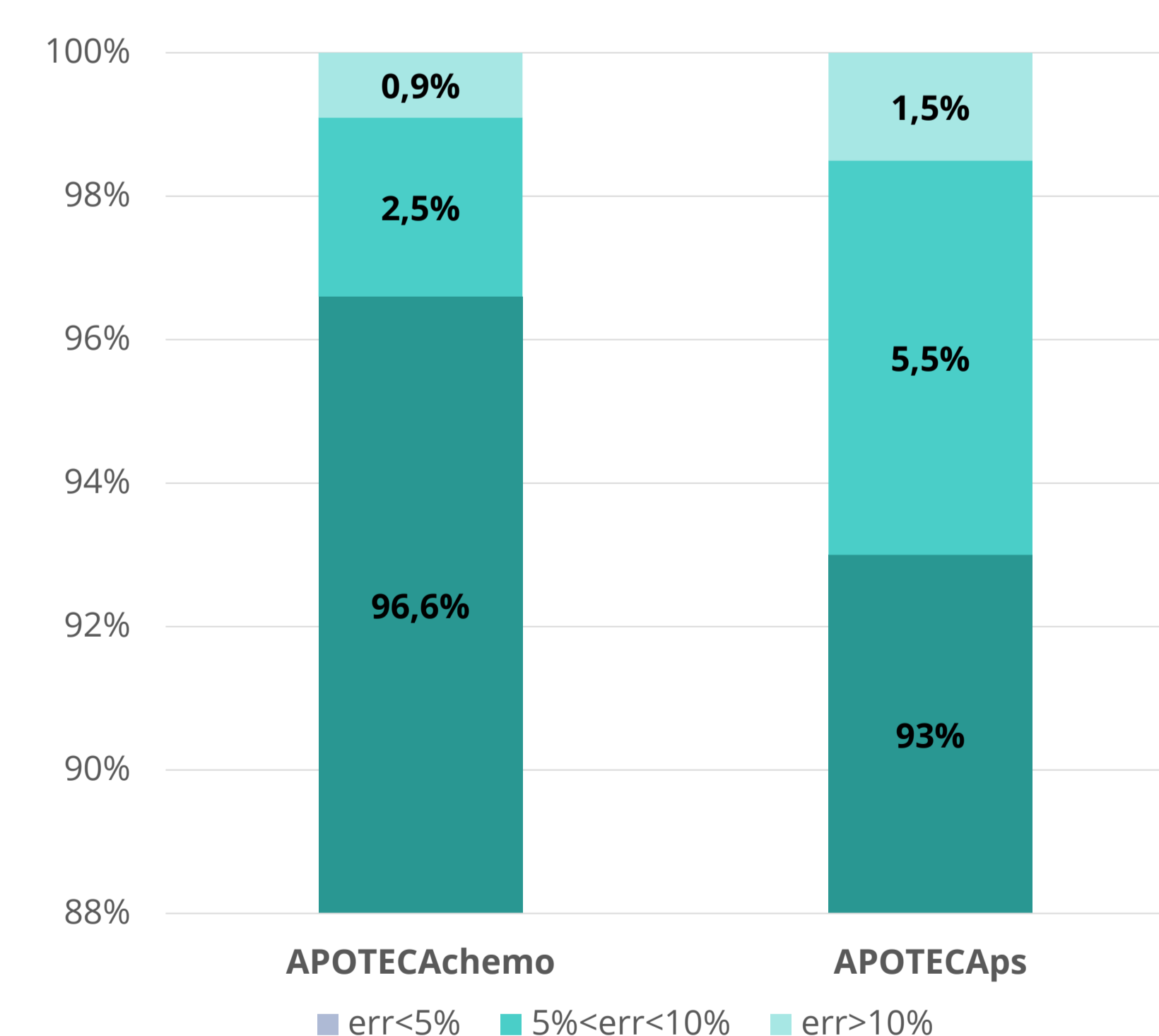
## RESULTS

Overall, 18,524 preparations (62.6% infusion bags, 26.3% syringes, 11.1% elastomeric pumps) were compounded with APOTECAchemo and 5,272 preparations (52.3% infusion bags, 46.8% syringes, 0.9% elastomeric pumps) with APOTECAs. In total, 82 different active ingredients were processed. Regarding dose accuracy, APOTECAchemo showed better performances with 96.6% of preparation with a deviation of  $\pm 5\%$  versus

93.0% of the manual compounding. Less than 1% of preparations compounded automatically presented a drug error exceeding 10%. The turnaround time, calculated from the prescription time to the delivery time, was similar for both procedures. The average output amounts to 13.2 preps/hr for APOTECAchemo and 15.0 preps/hr for APOTECAs.



Production trend of 9-month Pharmacy activity



Dosage accuracy (in terms of percent relative error) of preparation compounded automatically (APOTECAchemo) and with guided system (APOTECAs)

## CONCLUSION

The utilization of the fully automated platform for managing the oncology pharmacy activities guarantees the possibility to measure and control every

single step of the whole production process. In-process controls, such as gravimetric check, barcode and photographic recognition, allow to prompt

take corrective actions in case of deviations.