

Implementation of a unique automation and management platform to extend process control to all medicinal products prepared for cancer patients

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BACKGROUND AND PURPOSE

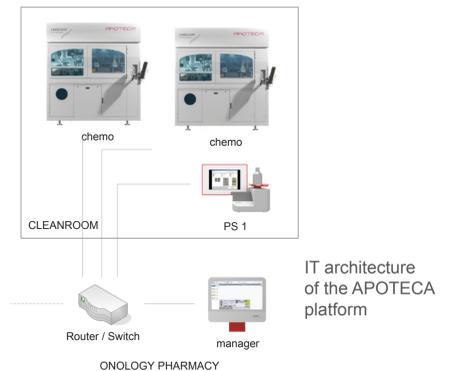
Many publications [1-3] have demonstrated that robotic automation represents a unique solution to assure absolute quality and safety of the oncologic therapy admixture process. Nevertheless, there are a small number of preparations (i.e. investigational drugs) that are currently not candidates for robotic preparation. In order to extend the total quality concept to the entire

production process, we have designed and implemented automation platform composed of:

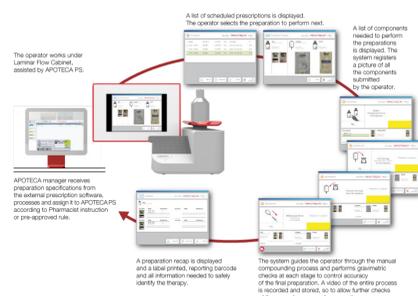
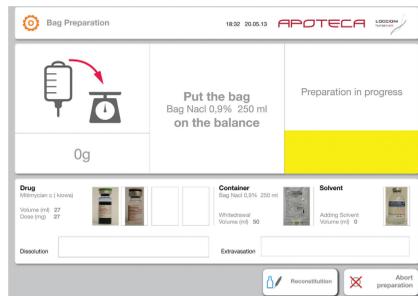
1. robotic system for automated admixture (APOTECAchemo);
2. guided preparation system to support manual admixture (APOTECAs);
3. workflow management software that manages all pharmacy

production activities for both systems (APOTECAManager).

Here we focus the attention on APOTECAs to analyse the measurable improvements in production quality it has introduced. It is important to understand the overall impact on a pharmacy activity in relation to both error reduction and workload.



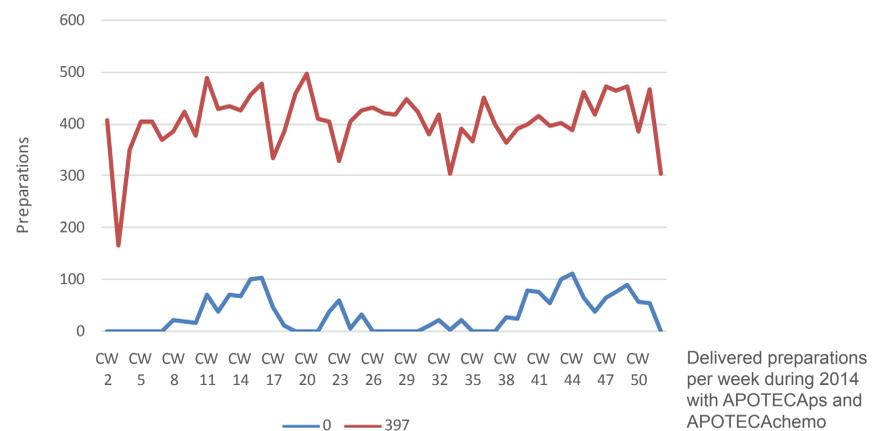
MATERIAL AND METHOD



A 4-week activity with APOTECAs was monitored in the University Hospital of Ancona, the first hospital where the entire platform was installed and implemented. Regarding APOTECAs, the production

time and intercepted errors were extrapolated from the system log file that records every single operation. Concerning the manual procedure, a third operator clocked the compounding time.

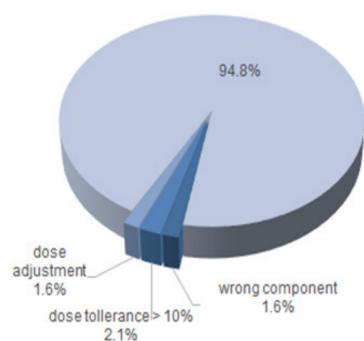
RESULTS



The number of medications analysed are 192 with 25 active ingredients. The intercepted mistakes were 11 (5.7%): 3 were associated to wrong component supply, 4 to tolerance exceeding 10%, 3 to adjustment of dosage of drug or solvent. In terms of preparation time, the mean time was 220 sec and 125 sec respectively for

the guided and the manual preparations. The guided procedure resulted 1.8 times slower than the traditional manual procedure, depending on the extra steps of controlled introduced. In 2014 a total of 1669 doses were guided by APOTECAs with respect to 21077 medications compounded with APOTECAchemo.

CONCLUSION



The implementation of a guided preparation system increases medication quality and patient safety. 11 potential medication errors in 192 preparations (incidence rate

Incidence of the intercepted mistakes

of 5.7%) were intercepted from their first stage, giving the chance to rectify those. However, high level of control comes with an important impact on the production time. Today the system is

totally implemented and used to extend the quality controls and traceability to the medications that cannot be automated. The activity covered with APOTECAs ranges from 9 to 15%.

References:

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