

# AUTOMATED INTRAVENOUS CHEMOTHERAPY WORKFLOW: THE ADDED BENEFIT TO REDUCE POTENTIAL MEDICATION ERRORS

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## Background

Due to toxicity of molecules involved and seriousness of adverse drugs events, chemotherapy compounding is a high-risk medical practice. To ensure high standard of safety and quality of the process, in September 2014 our hospital pharmacy realized a new oncology workflow, based on the implementation of a robotic system for intravenous

(IV) chemotherapy compounding. In order to avoid any mistakes that can lead to potential medication errors, the technology adopted is equipped with a set of different sensors able to guarantee the appropriate identification of the all components used for the compounding.



## Purpose

To present the improvement introduced by the automation in terms of quality and safety of the cure offered to patients, highlighting the importance of a total controlled oncology workflow.

## Material and methods

We analyzed 8-weeks automated IV production, focusing on potential medication errors intercepted by the automated system. All these events have been recorded and elaborated by APOTECAManager, the pharmacy IV production management software.

## Results

The 2-months production evaluation results in 2312 IV chemotherapies prepared. The automated system detected 59 potential medication errors, preventing any erroneous therapy compounding.

In details:

- 50** Events associated to wrong components barcode scanning (e.g. Sodium Chloride instead of Dextrose bag scanning)
- 5** Occurrences during the vial weighing procedure
- 4** Episodes during the vial label identification.

All these events are related to wrong material loading carried out by technician. We assessed the weekly trend of potential error occurrences: Monday and Tuesday result to be the days with higher events frequency, respectively 7.1% and 6.2% of total daily production. We also noticed that the 51% of detected errors occurs between 8am and 11am in the morning.



## Error occurrences

Daily trend\*



Weekly trend\*

	Mo	Tu	We	Th	Fr	Sa
No. Errors	10	28	4	9	4	4

\*2-month activity

## Conclusion

Every step of the oncology workflow is now totally controlled, allowing the traceability of each operation, from prescription to administration. The results show the added

benefit of this technology in terms of potential medication errors reduction and self-assessment on your own compounding procedure; at the same time, evidences

point out the need for implementing specific interventions in clinical practice in order to reduce the occurrence probability of these events.