

Optimizing Medication Circuit Safety at Hôpital Libanais Geitaoui-CHU

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INTRODUCTION

Medication errors are the fourth cause of death in the USA, and 1 in 9 patients are at risk for a medication error. The growth in medication use has undoubtedly led to an increase in the complexity of the medication process with some hospitals identifying about 50-100 steps between a doctor's decision to order a medication and its delivery to the patient. Therefore, reinforcing the safety of a hospital's medication circuit is critical to ensuring efficient and effective medication management, and ultimately, patient safety. This can be done by placing barriers at error-prone steps in the circuit.

The medication circuit comprises of five main stages: (a) ordering/prescribing, (b) transcribing and verifying, (c) dispensing and delivering, (d) administering, and (e) monitoring and reporting. The medication circuit is a hospital-wide highly complex process, thus it becomes increasingly important to develop and implement strategies to enhance barriers to errors whilst optimizing medication use, and ultimately patient safety.

PURPOSE

The main objective of this project is to ensure patient safety through reducing the level of medication errors, unify the transmission of medical information, and create a system based approach to error identification and prevention.

METHODOLOGY & PROCEDURES

At Hôpital Libanais Geitaoui-CHU, we adopted a combined methodology of process analysis and practice evaluation, in line with international recommendations and analyzed reported adverse drug events, in order to identify areas for improvement. This multidisciplinary project began effectively in June 2015, for the next 6 months, and was fostered by the Medication Management and Use (MMU) Committee, involving members from the pharmacy, nursing administration, physicians, IT, quality and patient safety departments.

Several areas for improvement and corresponding improvement actions were identified and are currently underway:

- In order to reduce transcription errors, the medication prescription and administration forms were re-designed into structuring the medical information, enhancing medication reconciliation and improving auditing by the pharmacy (pilot study currently underway).

- Increasing the timely availability and sharing of patient information (home medication, allergies, diagnosis) in the Hospital Information System (HIS) to enhance the analysis of prescription accuracy. HIS supporting modules were audited and future improvements in functionalities identified.

- Provision of various clinical decision support tools (drug references, dosage calculator) to interns/residents and nurses to improve drug prescription and preparation practices.

- Optimization of cytotoxic drug preparation procedure and standardizing chemotherapy order sets.

- Holding regular education/feedback sessions to concerned staff, in order to increase medication error reporting rate and correct use of supporting tools.

- Updating internal medication management standards to integrate international practice recommendations.

RESULTS

Reporting on Adverse Drug Events

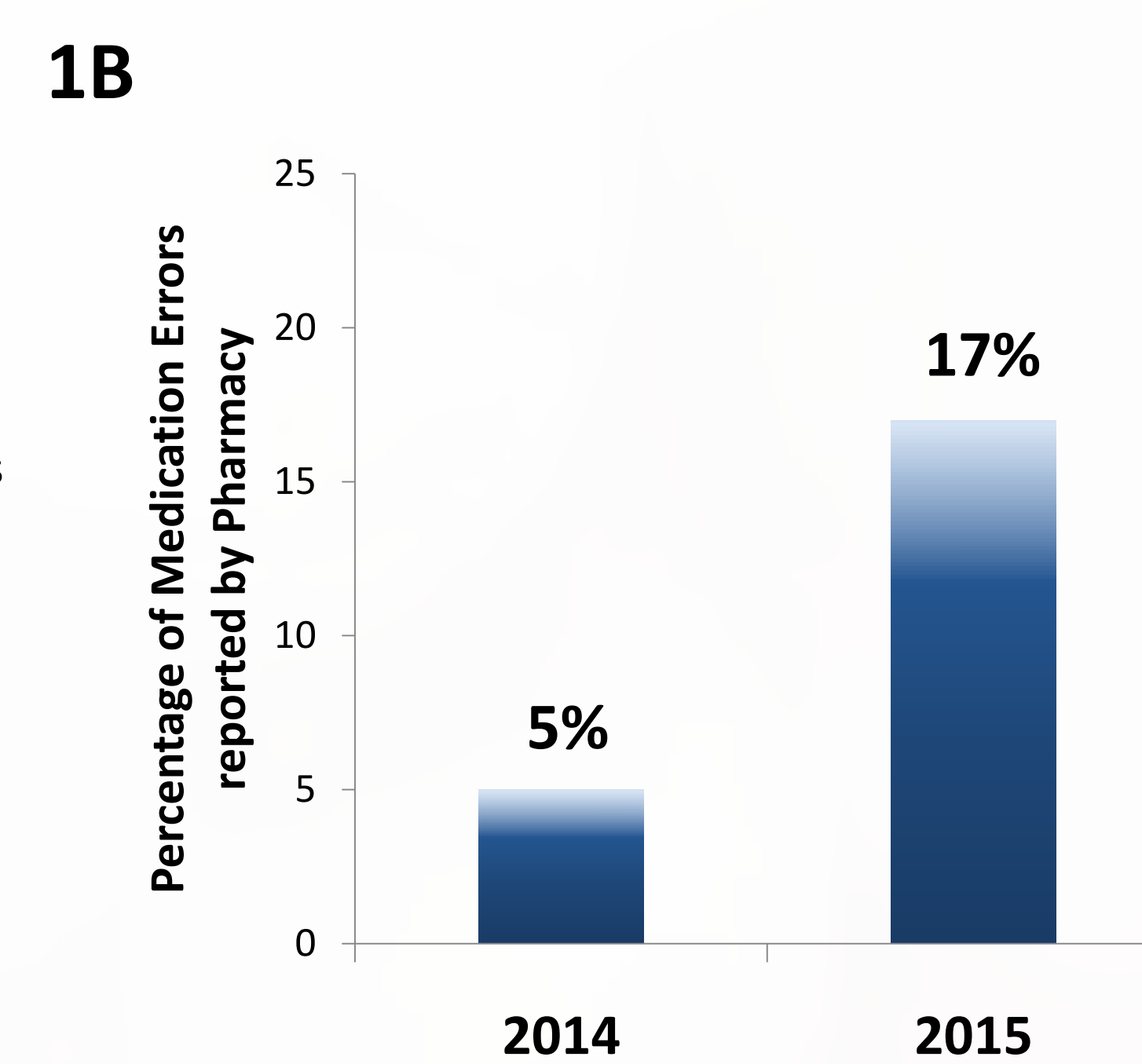
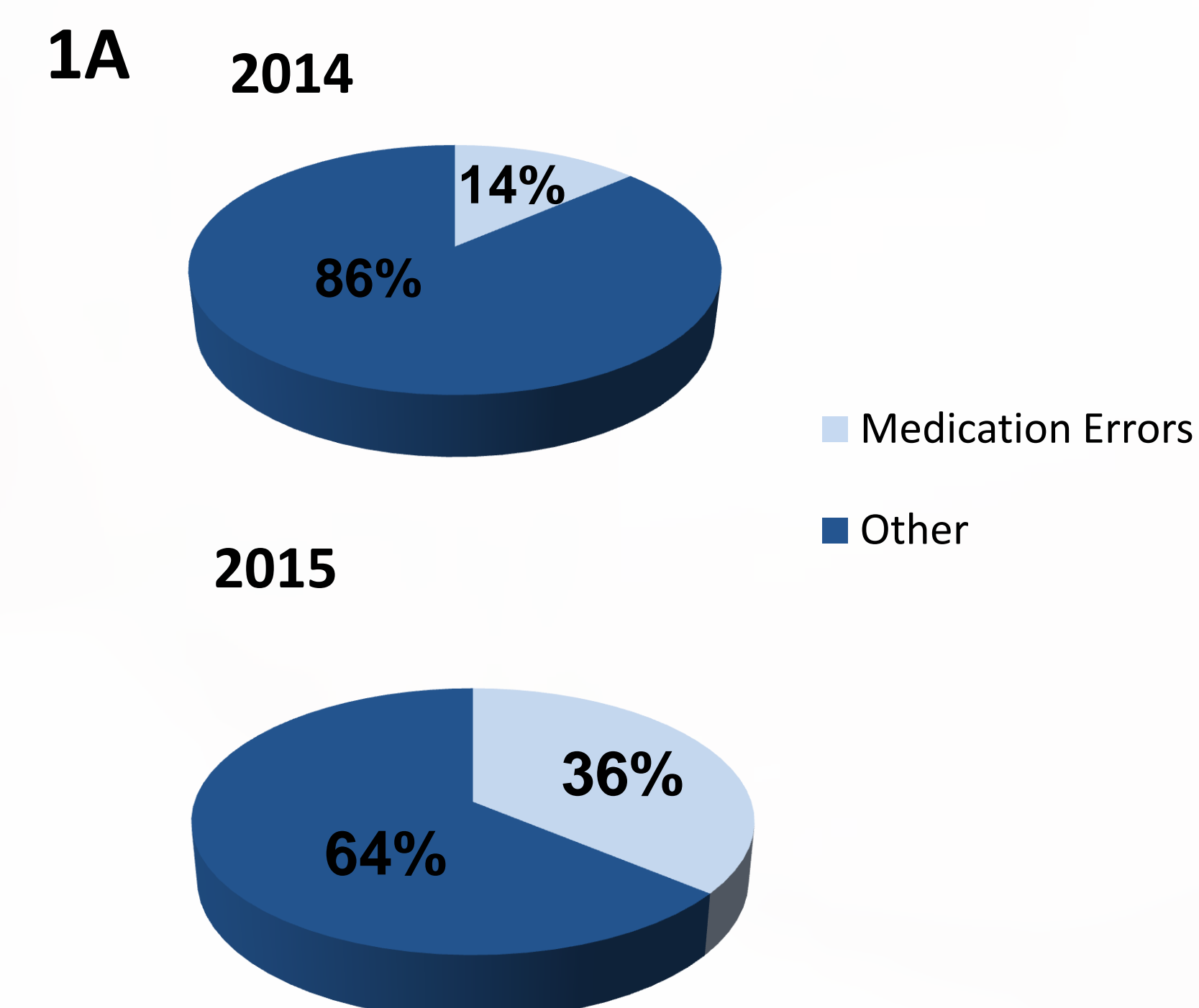


Figure 1. Comparison of Occurrence Variance Reporting (OVR) Rate in 2014 and 2015 regarding A) total medication errors and B) OVRs reported by the pharmacy.

Availability of Patient Information

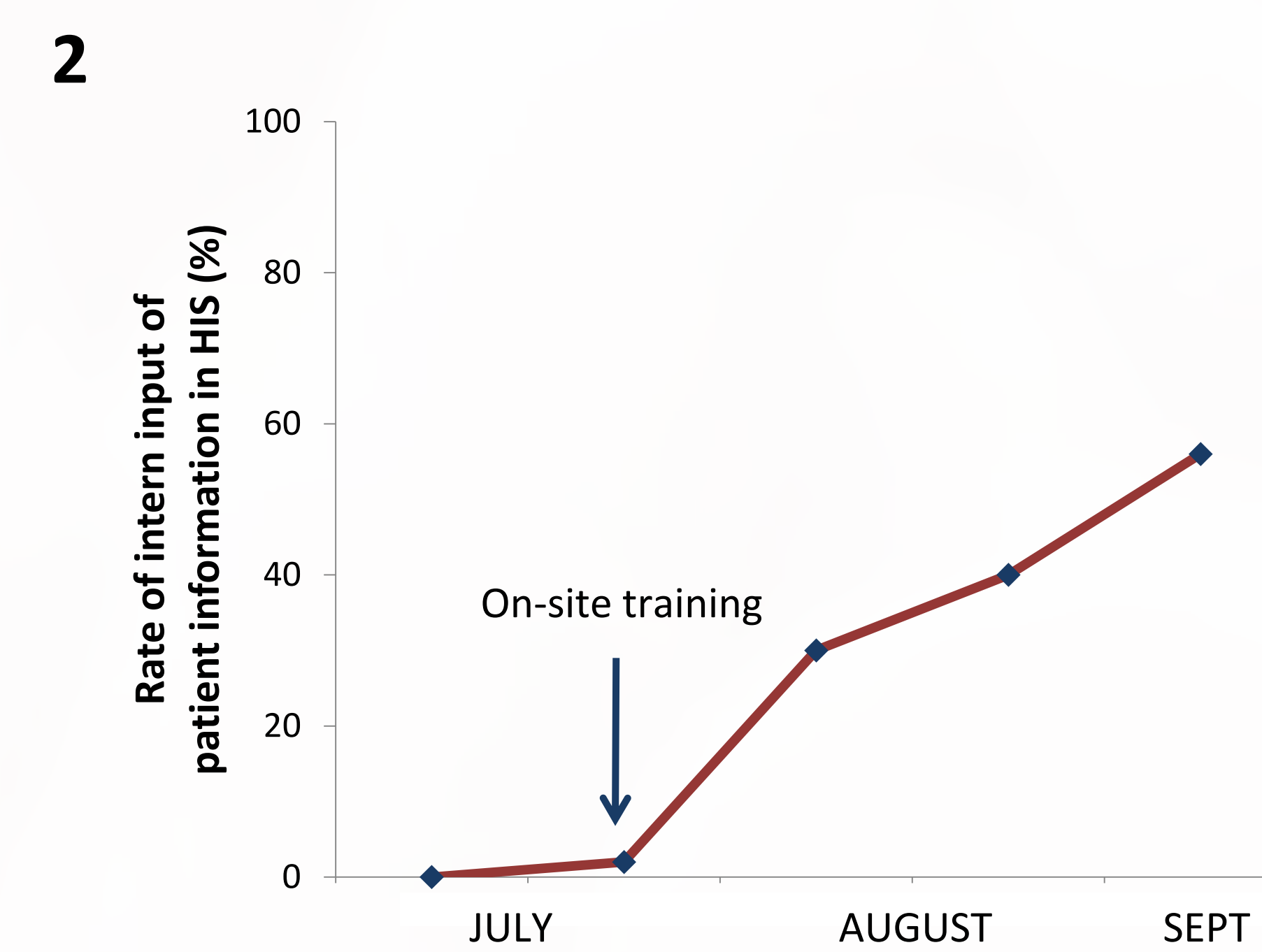
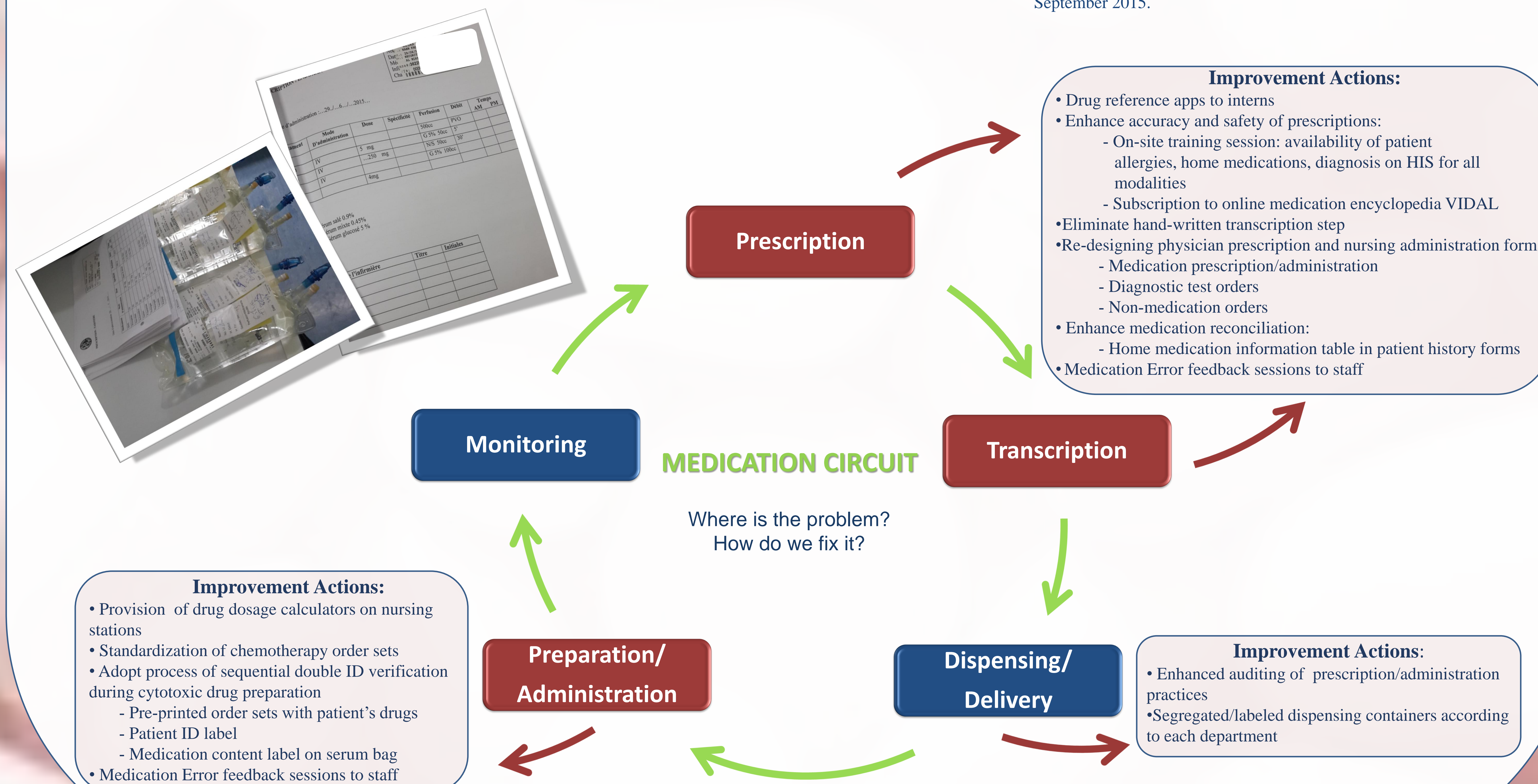
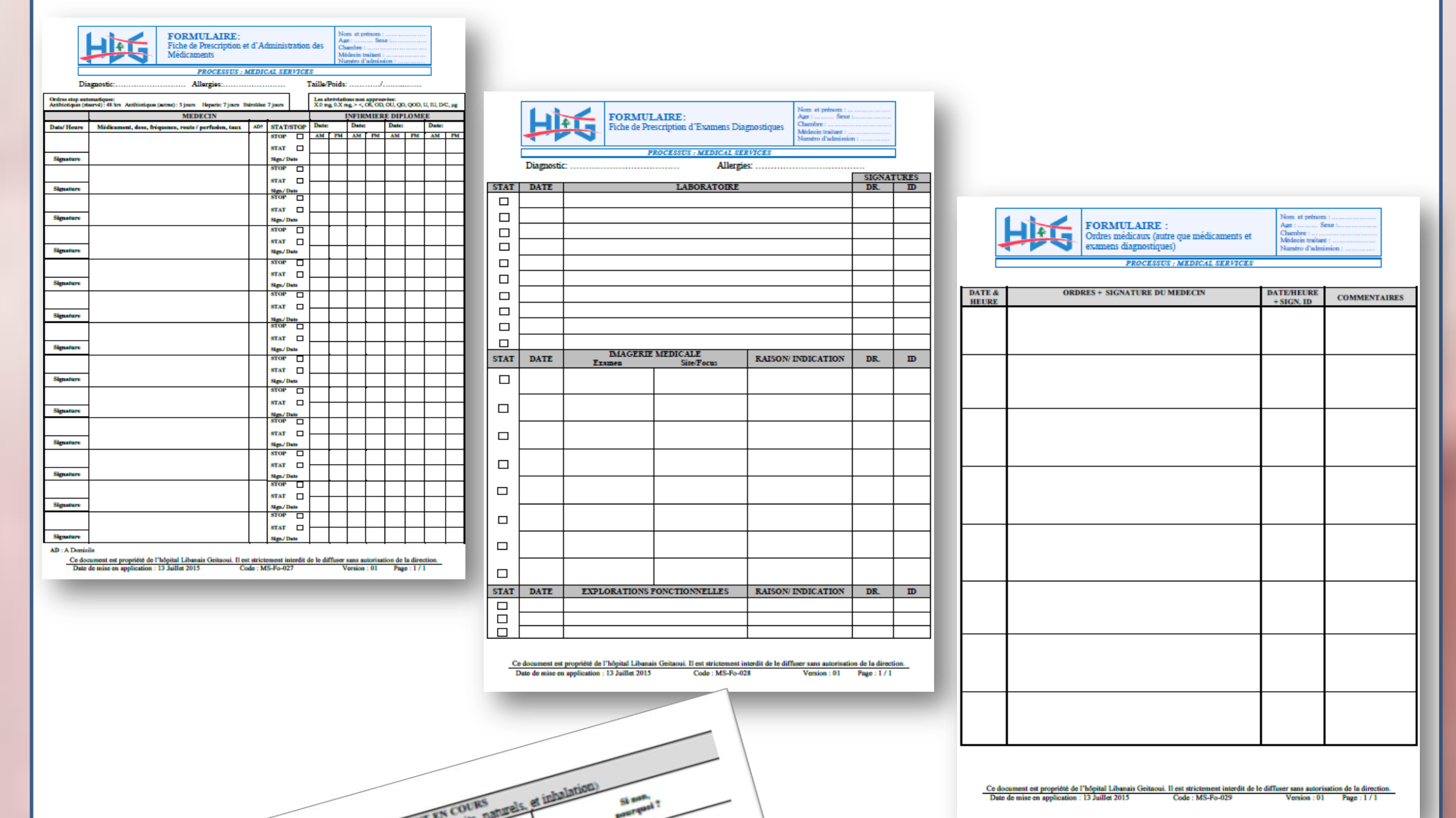


Figure 2. Increased timely availability and sharing of patient information (home medication, allergies, diagnosis) in the Hospital Information System (HIS). Data collected from July-September 2015.



IMPROVEMENT TOOLS

Medical Prescription Forms



Medication Reconciliation: Home Medications

DISCUSSION

As the complexity of medication circuits within healthcare institutions increases, so does the risk of error. One important, yet challenging method of detecting medication errors, or the risk thereof, is through reporting adverse drug events, whether potential or actual.

In comparison to 2014, the level of medication error-related occurrence variance reports (OVR) doubled by 2015, even though the number of OVRs remained the same. One contributing factor is the three-fold increase in reporting by the pharmacy, which plays a crucial role in monitoring prescription, transcription and dispensing errors.

Providing on-site training to physicians, proved to aid in making patient information available on the HIS for the pharmacy, medical imaging and laboratory departments (currently 56% compliance rate), which can aid in the reconciliation and accuracy of prescription processes, not to mention improve the analysis of prescriptions by the pharmacy. By eliminating the transcription step, and re-structuring medical order information, we project that transcription errors will decrease, and the communication between different health care professionals improve. A pilot study is currently underway in order to identify areas for improvement before it is diffused as a hospital-wide practice.

Cytotoxic drug prescriptions have now been standardized as electronic protocols among concerned physicians. Having a uniform format of prescribing high-risk medications aids in standardizing practice, thus reducing medication errors. We have also revised the method of patient identification during cytotoxic drug preparation, into incorporating a three-step process of ID verification throughout.

A constant improvement action that we are adopting is regular feedback to concerned staff regarding the level of medication errors and possible causes, in order to raise awareness, in addition encourage a multi-disciplinary problem solving approach. Evaluation of the above mentioned improvement actions will be done by the end of 2015.

ACKNOWLEDGEMENTS

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