

Background

An automatic storage and picking system linked to the electronic prescription was introduced in the Pharmacy Department of Sant Joan de Déu's Children's University Hospital.

This department prepares and distributes unit dose patient-specific medication to 213 paediatric in-patients on a daily basis.

Safety is one of the most important objectives in any hospital, so the automation of the dispensation process was introduced in order to increase it.

Purpose

The aim of this study was to determine whether dispensing errors were reduced in preparing daily unit dose drugs in a paediatric hospital after the introduction of an automated storage and picking system in comparison with the traditional manual picking.



Material and Methods

Data were collected during two months by checking the whole amount of medication units contained in every patient's daily unit-dose (dispensed in an individual container) before sending them to the wards.

- It was done:
- ✦ a month prior to the introduction of the automated storage and picking system (A.S.P.S.)
 - ✦ the same month once this system was fully implemented

A chart was used to register every incident detected.

Incidences were classified as:

- ✦ Wrong medicine
- ✦ Wrong dosage
- ✦ Wrong pharmaceutical form
- ✦ Excess of units
- ✦ Missing units
- ✦ Wrong patient container

Results

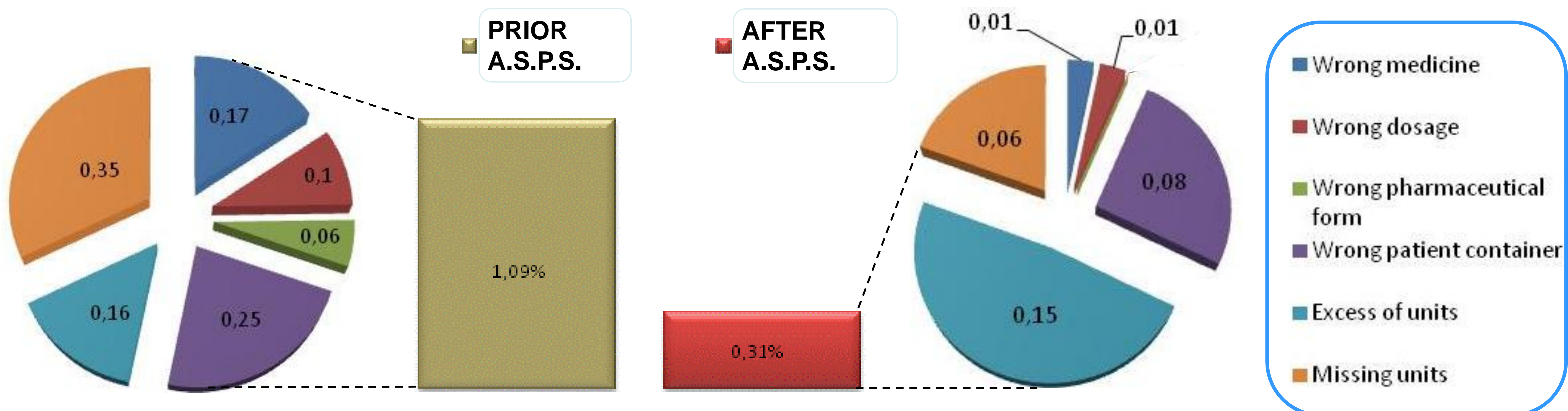
A total of 30,114 units were analyzed, 17,062 of them were checked before the automated storage system was implemented in the Pharmacy, and the rest -13,052 units- were examined after its implementation.

Recorded errors were 186 (1.09% regarding the total units dispensed) in the first stage, before automation, and 41 (0.31%) in the second (after automation), resulting in a Risk Ratio of 3.52.

Discussions

Analyzing the type of errors it is important to remark that wrong medicine and wrong dosage were drastically reduced. Wrong pharmaceutical form error was suppressed, whereas the excess of units remained steady.

Percentage of total dispensing errors



Conclusions

By implementing an automatic storage and picking system, patient safety has increased due to the reduction of dispensing errors.

The most important reduction was observed in those errors related to dispensing the wrong medicine or dosage, which are precisely the most hazardous and likely to happen in a paediatric hospital owing to the large number of available pharmaceutical forms and dosages for the same drug.