

Changes in patient safety during medication preparation and administration – experiences from the implementation of a Closed Loop Medication System

A. Mulac^{*1}, R. Kristiansen², H. Chairi¹, M. Bayar¹, A. G. Granas¹

1. School of Pharmacy, University of Oslo, Norway. 2. Østfold Hospital Trust, Kalnes, Norway.

Background and objective

Closed loop medication system (CLMS), using scanning of barcodes on medicines and patients' wristbands, can reduce medication errors. Hospitals in Norway are still in an early stage for utilizing this technology.

The aim of this study was to evaluate nurses' experience and reflections of how CLMS affects patient safety during medication preparation and administration.

Methods

Semi-structured focus group interviews in a hospital prior and after the implementation of a CLMS pilot in 2017.

Focus group interview themes before and after implementing the CLMS

Before	After
<ul style="list-style-type: none">• Errors and omissions• Medication procedures in the:<ul style="list-style-type: none">- medication room- the ward- patient rooms	<ul style="list-style-type: none">• Errors and omissions• Experiences with CLMS and new technology• Use of professional knowledge with new medication procedures• How CLMS affected work-flow

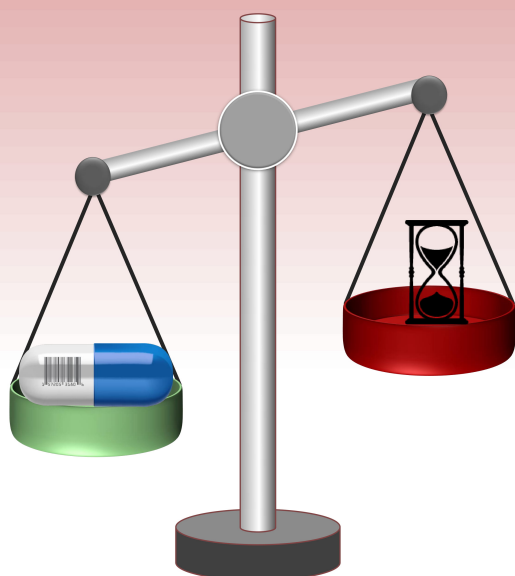


Figure 1. Scale representing the outcome of the implementation of CLMS. Nurses found that balancing the disadvantage of extra time spent on CLMS, versus that it promotes safer medication procedures, in sum favors patient safety.

Results

Two focus groups with 13 nurses from four hospital wards were held in March 2017 and January 2018.

CLMS promotes standardization of medication preparation and administration routines, and potentially improves patient safety.

Nurses said that CLMS helped them to confirm that the correct medicines were given to the correct patient. Barriers were adaptation to new and more rigid CLMS procedures and the time consuming steps of CLMS. The design of the medicines trolleys is not optimal: too little space for the lap-tops used during scanning; cumbersome to maneuver in the patient rooms; and non-hygienic as the trolley surface-top is also used for intravenous preparation (photo 1 and 2).



Photo 1 and 2. Medicines trolleys.

Patients medicines for 24 h are stored in blue boxes labeled with the room number. Laptop is linked with the scanner.

Conclusion

We conclude that implementing CLMS makes a crucial step towards reducing prescribing and administration errors. However, technical and practical challenges must be optimized for efficient implementation of CLMS.

More information

Contact Alma Mulac: alma.mulac@farmasi.uio.no



UiO : School of Pharmacy
University of Oslo

