ASSESSMENT AND OPTIMISATION OF THE MANAGEMENT OF HIGH RISK MEDICINES IN A GENERAL HOSPITAL

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BACKGROUND

High Risk Medicines (HRMs) are medicines with an increased risk of significant harm to the patient if they are misused.

Regarding the storage of HRMs, our hospital guidelines are based on the reference system of our accreditation organization, Accreditation Canada International (ACI)

Compliance with ACI guidelines is essential to ensure the quality of care. ACI guidelines recommand a safe and continuous management of HRMs

OBJECTIVES

- To determine the rate of adverse drug events related to HRMs in our hospital
- To evaluate the impact of the introduction of low-concentration electrolytes (Potassium Chloride) on the consumption of concentrated electrolytes (Potassium Chloride)
- To test the impact of pharmaceutical interventions on four quality indicators linked to HRMs storage in care units

METHODS

At CHR Haute Senne, High Risk Medicines are classified among the five following categories: chemotherapeutic agents, anticoagulants, insulins, narcotics & sedatives, concentrated electrolytes (Picture 1).

4 categories of HRMs are stored in some hospital care units as shown on Picture 2. Chemotherapeutic agents are not stored in care units.

All HRMs are identified with a specific labelling (Picture 3).

Picture 3—Specific labeling

Picture 2—Example of HRMs' storage in care unit

Picture 1—Informative poster

Adverse drug events related to HRMs

- Analysis of adverse drug events recorded during the year 2021
- Identification of adverse drug events related to HRMs

Consumption analysis of injectable Potassium Chloride (KCl) solutions

A consumption analysis of injectable Potassium Chloride (KCl) concentrated and low-concentrated solutions was performed during the period April 2018 — March 2022.

Three KCl low-concentrated ready-to-use solutions were introduced to the hospital's therapeutic formulary in March 2019: Glucion 5 % 13 mEq KCl, Glucion 5 % 1000 ml 26 mEq KCl and Glucose 5 % + NaCL 0,3 % + KCl 0,3 % (40 mEq) .

Picture 4 — Low concentrated electrolytes' solutions

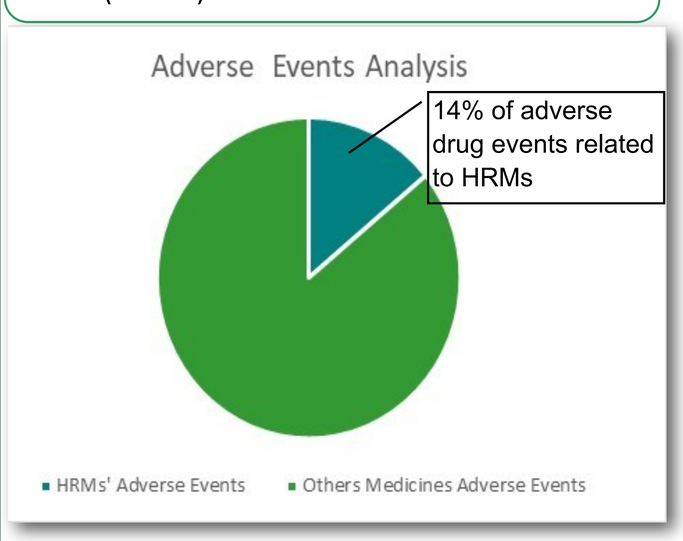
Monocentric quasi-experimental quantitative study

- Audits conducted in 6 care units over a period of 3 weeks in December 2021 and focused on the following items: storage, quantity, labelling and expiry date of each HRM stored in care unit.
- A Pharmaceutical intervention took place during each audit as follows: tidying, relabeling, withdrawal of expired HRM, feedback of audit, education and awareness
- Evaluation of the impact of interventions: for the comparison between the groups (pre-test and interventions groups), data were analysed using Chi Square test for all HRMs.

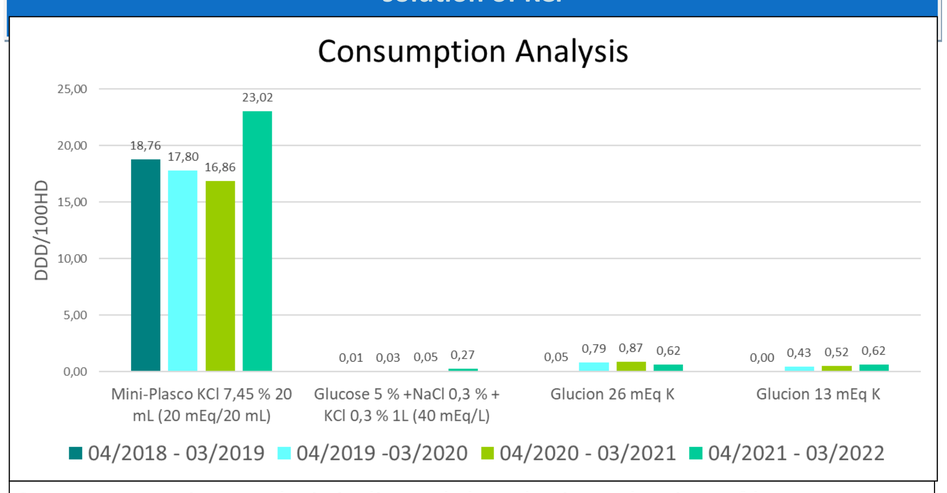
RESULTS AND DISCUSSION

Rate of HRMs related adverse events in the hospi-

40 HRMs' related adverse events were reported amongst all the reported medicines adverse events (n =286)



Consumption analysis of low concentrated solutions and a concentrated solution of KCl

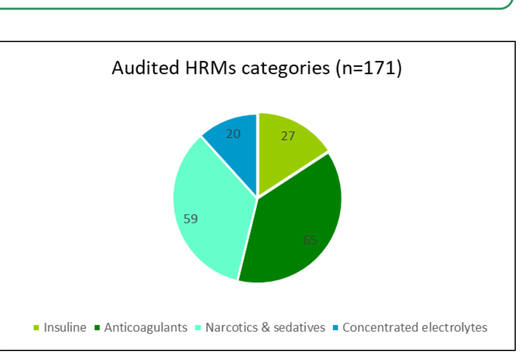


Our consumption analysis indicated that the introduction of low-concentrated KCl solutions in care units was not followed by the expected decrease in the prescriptions of injectable KCl concentrated solutions.

Impact of pharmaceutical interventions

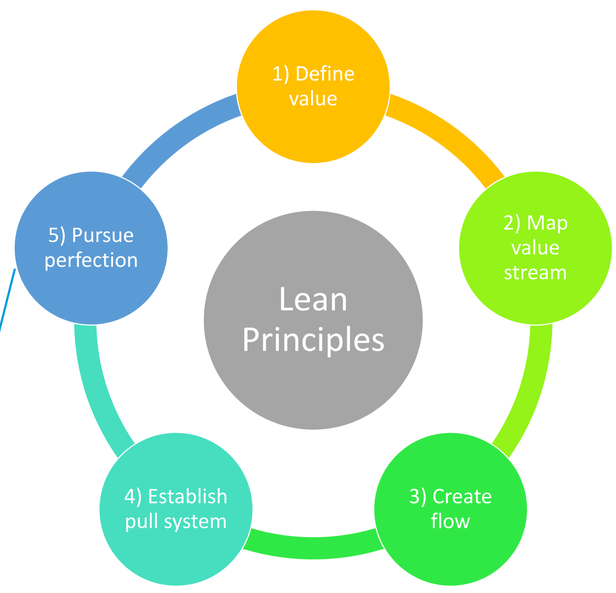
A total of 171 HRMs were audited in care units.

Picture 5 — HRM's Storage in Surgery Care



The impact of the pharmaceutical interventions performed during these quality audits was evaluated, which allowed to demonstrate a statistically significant improvement ($p < 0,05$) in terms of storage and expiry of HRMs

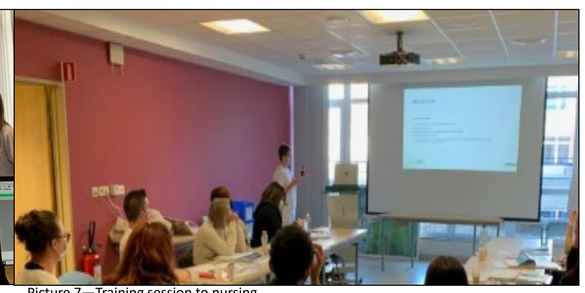
The LEAN Methodology was used to draft our action plan to improve HRMs practices.



	Compliance			P(a)	P(b)
Evaluated item	AUDIT 1	AUDIT 2	AUDIT 3	Audit 1 vs audit 2	Audit 2 vs audit 3
Storage, n (%)	142 (87,1)	147 (93,6)	147 (91,3)	0,04891	0,43240
Quantity, n (%)	93 (54,4)	92 (53,8)	104 (60,8)	0,91359	0,18960
Labeling, n (%)	149 (91,4)	147 (93,6)	151 (93,8)	0,45110	0,60790
Expiry, n (%)	145 (88,9)	157 (100,0)	160 (99,4)	0,00002	0,32260

- Hiring for Pharmacy staff : August 2022
- Training of Pharmacy team : August 2022
- Training on HRMs to nursing teams : June 2022
- Nursing expert for HRMs in each care unit : June 2022
- HRMs Consumption analysis for care units : December 2022
- Seminars for physicians to promote use of low concentrated solutions of KCl : December 2022
- HRMs adverse events monitoring and analysis : December 2022

Picture 6—Pharmacy staff of CHR Haute Senne



Picture 7—Training session to nursing

CONCLUSIONS

This work highlights the importance of the pharmacy team in the continuous quality improvement approach to optimize the management of High Risk Medicines in a hospital.

Periodic assessments of HRMs within the care units and in the centralized pharmacy are planned and performed to enhance the quality and safety deployment in collaboration with the care teams.

It underlines the key role of the hospital pharmacist as major contributor to the quality and safety of patient care.

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