

# Evolution of the conformity of the drug use circuit on healthcare units and outpatient clinics of a mother-child university healthcare center

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## Background

- The drug use circuit is complex and encompasses **many steps**.
- Pharmacy departments are responsible for maintaining a safe drug use circuit that allows for **quality patient care**.

## Objectives

- To assess the **conformity of the drug use circuit** on patient care units and outpatient clinics in 2022.
- To compare it **for 2019 and 2022**.

## Methods

- **Descriptive, observational and cross-sectional study.**
- In a **mother-child university healthcare center**:
  - **2019** : from 15/07/2019 to 24/07/2019;
  - **2022** : from 09/09/2022 to 13/10/2022.
- Utilization of a **standardized electronic tool** including 8 themes and 25 criteria for patient care units and 6 themes and 17 criteria for outpatient clinics. The themes were:
  - 01. Storage;
  - 02. Waste;
  - 03. Controlled substances;
  - 04. Refrigerator;
  - 05. Cabinets (only for patient care units);
  - 06. Trolleys (only for patient care units);
  - 07. Crash carts;
  - 08. Display.
- **Two pharmacy residents** realized the audit by **direct observation** and **scored criteria** as: conform with/without recommendations, not conform or non-applicable.
- **Reports realized** for each patient care unit and outpatient clinics, then validated by the responsible pharmacist and sent to the care services.
- **A Chi-2** was used to compare both years.

Table I. Total conformity of the drug use circuit in 2019 and 2022

	Patient care units		Outpatient clinics			
	TC 2019 n/N (%)	TC 2022 n/N (%)	p	TC 2019 n/N (%)	TC 2022 n/N (%)	p
<b>01 Storage</b>						
01.1 Cleanliness - 100% of the storage and dose preparation area is clean	14/18 (78)	13/19(68)	<b>0,714</b>	25/26 (96)	24/24 (100)	<b>1,000</b>
01.2 List and quotas - 100% of the available medication stocks respect the authorized denominations and quotas, and there are no other unauthorized stocks	17/18 (94)	13/19(68)	<b>0,090</b>	24/26 (92)	21/25 (84)	<b>0,419</b>
01.3 List and quotas - Absence of concentrated electrolytes and heparin except authorized products	17/18 (94)	19/19 (100)	<b>0,486</b>	25/25 (100)	24/24 (100)	<b>NA</b>
01.4 List - Absence of medication sample	18/18 (100)	19/19 (100)	<b>NA</b>	19/24 (79)	22/25 (88)	<b>0,463</b>
01.5 Expiry - 100% of medication stocks are not expired	16/18 (89)	10/19 (53)	<b>0,029</b>	21/26 (81)	12/24 (50)	<b>0,036</b>
01.6 Returns - presence of a medication return bin at the pharmacy	8/18 (44)	11/19 (58)	<b>0,746</b>			
01.7 Securisation of medication stocks - 100% of the available unit stocks cannot be taken by a patient	18/18 (100)	17/19 (89)	<b>0,486</b>	26/26 (100)	24/24 (100)	<b>NA</b>
<b>02 Waste</b>						
02.1 Presence of a waste bin adapted to the policy and procedure	14/18 (78)	16/19 (84)	<b>0,693</b>	18/24 (75)	9/24 (38)	<b>0,019</b>
<b>03 Controlled substances</b>						
03.1 Controlled substances – 100% of control sheets are active and answer to a need	14/16 (88)	12/17 (71)	<b>0,398</b>	1/3 (33)	1/4 (25)	<b>1,000</b>
03.2 Controlled substances - list - Absence of concentrated opiates excluding exceptions according to policy and procedure	18/18 (100)	16/18 (89)	<b>0,486</b>	3/3 (100)	4/4 (100)	<b>NA</b>
<b>04 Refrigerator</b>						
04.1 Thermometer - The fridge has a conform thermometer	16/18 (89)	17/17 (100)	<b>0,486</b>	13/14 (93)	14/14 (100)	<b>1,000</b>
04.2 Register - More than 90% of the required temperature values are available for the 30 days before the visit	8/18 (44)	7/17 (41)	<b>1,000</b>	7/13 (54)	9/14 (64)	<b>0,704</b>
04.3 Refrigerator - list and quotas - 100% of its contents are conform (i.e. no other items, no food)	10/18 (56)	4/17 (24)	<b>0,086</b>	12/13 (92)	9/14 (64)	<b>0,165</b>
04.4 Refrigerator - cleanliness - bins, tablets and bottom of the refrigerator is clean	16/18 (89)	12/17 (71)	<b>0,228</b>	11/13 (85)	11/14 (79)	<b>1,000</b>
<b>05 Cabinets</b>						
05.1 Documentation - 100% of the available documentation on the cabinets is conform	16/16 (100)	12/16 (75)	<b>0,101</b>			
05.2 Cleanliness - 100% of the cabinets surfaces are clean	15/16 (94)	14/16 (88)	<b>1,000</b>			
<b>06 Trolleys</b>						
06.1 Trolley- cleanliness - 100% of single-dose trolleys are clean	4/13 (31)	8/12 (67)	<b>0,115</b>			
06.2 Trolleys - drawer - 100% of medication contained in the drawers are on the medication commons list of patient care units	8/15 (62)	4/12 (33)	<b>0,238</b>			
06.3 Trolleys - multidose drawer - 100% of the medication dispensed by the pharmacy on behalf of the patients are for a patient still hospitalized	10/12 (83)	6/12 (50)	<b>0,193</b>			
06.4 Trolleys - blank labels are available on the medicine trolleys	6/12 (50)	11/12 (92)	<b>0,069</b>			
<b>07 Crash carts</b>						
07.1 Crash carts – 100% of files audited (n=5) include a compliant PWPS (i.e. name, weight, signature)	10/10 (100)	15/15 (100)	<b>NA</b>			
07.2 Crash carts – Presence of a conform tray without expired drugs	16/16 (100)	17/18 (94)	<b>1,000</b>	23/23 (100)	25/25 (100)	<b>NA</b>
<b>08 Display</b>						
08.1 High risk drugs - The table of high risk drugs is displayed in the pharmacy	15/15 (100)	10/19 (53)	<b>0,002</b>	NA	NA	<b>NA</b>
08.2 Antibiotic dilution - the antibiotic dilution table is displayed or available	13/13 (100)	14/16 (88)	<b>0,488</b>	NA	3/3 (100)	<b>NA</b>
08.3 The information displayed is still available.	15/15 (100)	17/18 (94)	<b>1,000</b>	NA	17/17 (100)	<b>NA</b>

Abbreviations: TC: Total conformity; MAR: Medication Administration Record; PWPS: Pre-Written Prescription Sheet;

NA: Non applicable

## Results

- **Number of audited services :**
  - Patient care units: 17 in 2019 and 21 in 2022;
  - Outpatient clinics: 30 in 2019 and 33 in 2022.
- **Global conformity:**
  - Patient care units:  $82.5 \pm 17.4$  in 2019 and  $74.0 \pm 18.5$  in 2022;
  - Outpatient clinics:  $84.3 \pm 14.2$  in 2019 and  $82.6 \pm 19.6$  in 2022.
- **Criteria above 75%:**
  - Patient care units: 76.0% (19/25) in 2019 and 52.0% (13/25) in 2022;
  - Outpatient clinics: 85.7% (12/14) in 2019 and 72.2% (13/18) in 2022.
- **Criteria above 99,5%:**
  - Patient care units: 36.0% (9/25) in 2019 and 16.0% (4/25) in 2022;
  - Outpatient clinics: 28.6% (4/14) in 2019 and 50.0% (9/18) in 2022.
- **Conformity rate significantly reduced** for 4 criteria including:
  - 88.9% (16/18) of patient care units did not have expired drugs in 2019, versus 52.6% (10/19) in 2022 ( $p=0.029$ );
  - 75.0% (18/24) of outpatient clinics had a container for pharmaceutical waste in 2019 compared with 35.7% (9/24) in 2022 ( $p=0.019$ ).

## Discussion/Conclusion

- Conformity was **good and similar** between 2019 and 2022.
- The results of this repeated audit was used as an opportunity to provide **feedback** to the teams in order to **maintain a safe drug circuit**.

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