

Conformity of the drug-use process in patient care areas: a 4 year descriptive study



Rousseaux G¹, Daupin J¹, Atkinson S¹, Bussièrès JF^{1,2}

¹Pharmacy department and Pharmacy Practice Research Unit, CHU Sainte-Justine, Montreal, Canada; ²Faculté de pharmacie, Université de Montréal, Montréal, Québec

Purpose

- Pharmacy practice is highly regulated by federal and provincial laws and bylaws, national accreditation standards, professional guidelines and norms. The drug-use process is complex and includes 54 steps.
- The aim of this study is to describe and compare the conformity of the drug use process in patient care areas.

Methods

- This is a prospective cross-sectional descriptive study conducted in all inpatients care area of a 500-bed mother and child teaching hospital.
- The 4-year study period went from July 2012 to August 2015 with a summer audit/year.
- In 2012, we developed a paper checklist tool of 26 criteria grouped in 10 categories:
 - Storage
 - Waste
 - Controlled substances
 - Refrigerators
 - Medication carts
 - Automated medication dispensing cabinets
 - Medication reconciliation
 - Documentation
 - Resuscitation carts
 - Pharmacy department Intranet
- We used this tool until 2014 and redesigned it in 2015 with addition of ten new criteria grouped in unauthorized abbreviations, antimicrobial drug use, intranet use, hazardous drugs.
- Each criteria was judged as compliant, partially compliant or not compliant with comments.
- The results were integrated into an optimization and compliance management software. A report was sent to each patient care areas manager after being commented and approved by the unit's clinical pharmacist.

- For the criteria in common, we compare the conformity between 2014 and 2015 using Chi² and Fisher tests when appropriate. The results were significant for p<0.05.

Results

- 27 patient care areas were audited between July and August of each year.
- On average, audits took 54 hours of direct observation and data entry.
- Global conformity was respectively 71% in 2012, 65% in 2013, 78% in 2014 and 64% in 2015.
- The conformity decreased significantly for 6 criteria:
 - Presence of bin for reusable drugs return (p=0.011)
 - Presence of up-to-date documentation for the automated dispensing cabinets (p=0.024)
 - Conformity of the medication reconciliation form (the signature of the physician was added in 2015, which can explain the decrease of conformity) (p=0.021)
 - Presence of preprinted prewritten prescription (p=0.059)
 - Use of the simulation module of self-learning for the resuscitation carts (p=0.001)
 - Use of the pharmacy intranet (p<0.001)
- The addition of 10 new criteria contributed to slightly reduce the overall conformity rate from 69% to 64%.

Conclusion

This study illustrates the conformity of the drug-use process in patient care areas over 4 years with a plateau effect between 64% and 78%. The plateau effect was associated to at least three factors (e.g. insufficient nurse training, limited access to electronic resources, too many criteria to fulfill by clinicians). New strategies should be considered to further improve the conformity.

Contact : jf.bussieres@ssss.gouv.qc.ca Conflit d'intérêts : Aucun Financement : Aucun
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Table 1 : Four years comparative results

	2012	2013	2014	2015	p-value (2014 vs 2015)
STORAGE					
Cleanliness - 100 % of the storage and preparation areas are clean	77 %	96 %	92 %	93%	1.000
List and quotas - 100 % of drug's stock in the unit respect authorized lists and quotas	77 %	58 %	62 %	59%	1.000
List - No concentrated electrolytes except authorized by policies and procedures	96 %	81 %	88 %	96%	0.351
Samples - No medication samples	100 %	96 %	96 %	100%	0.491
Expiration - 100% of drugs have not expired	42 %	19 %	35 %	22%	0.317
Returns - presence of a tray for returns	68 %	54 %	96 %	67%	0.011%
Stock securisation - no medication can be steal by a patient	NA	NA	NA	100%	NA
WASTE					
Waste - Presence of a yellow bin for pharmaceuticals wastes	58 %	62 %	100 %	89%	0.236
CONTROLLED SUBSTANCES					
Control sheets - 100% of control sheets are active	96 %	100 %	96 %	96%	1.000
List - No concentrated opiates except authorized by policies and procedures	100 %	100 %	100 %	100%	Non-applicable
REFRIGERATORS					
Thermometer - The fridge have a glycol thermometer	65 %	68 %	80 %	93%	0.351
Registry - 100% of the required temperature values (ie min / max / current) are available for 14 days before the visit	30 %	18 %	16 %	26%	0.381
List and quotas - 100 % of drug's stock in the fridge respect authorized lists and quotas, fridge contains only drugs, no food	70 %	68 %	68 %	85%	0.142
MEDICATION CARTS					
Documentation - 100% of the available documentation on single-dose medication carts is up to date (ie antibiotics dilutions table, compatibility table and the Pharmacy binder)	79 %	38 %	69 %	47%	0.221
Cleanliness - 100 % of the carts are cleanly	21 %	71 %	86 %	58%	0.288
Drawer - 100% of the drugs contained in the drawers carts are included in the common unit drug list	57 %	29 %	29 %	37%	0.719
AUTOMATED MEDICATION DISPENSING CABINETS					
Documentation - 100% of the available documentation on cabinets is up to date and the Pharmacy binder (Black) is present	58 %	43 %	100 %	67%	0.024
Cleanliness - 100 % of the automated medication dispensing cabinets are clean	100 %	100 %	92 %	83%	0.621
MEDICATION RECONCILIATION					
100% of the admissions have a medication reconciliation	43 %	63 %	67 %	58%	0.582
100% of the medication reconciliation evaluated (n=5) are congruent (addressograph, allergy, drug identification, date, nurse signature, doctor signature (added in 2015))	71 %	58 %	53 %	12%	0.021
100% of the out prescription evaluated are congruent (e.g. addressograph, allergy, drug identification, physician signature and check on medication reconciliation)	NA	NA	NA	0%	NA
DOCUMENTATION					
No pre-written prescription preprinted unless authorized	96 %	88 %	95 %	73%	0.059
100% of preprinted medication administration records are up to date	85 %	80 %	100 %	95%	0.487
Resuscitation - 100% of audited cases (n = 5) have a congruent pre-written order sheet prescription (ie patient name, weight, nurse signature)	35 %	58 %	92 %	86%	1.000
Presence of smart pumps binder	58 %	43 %	46 %	47%	0.959
RESUSCITATION CARTS					
Presence of a full tray without expired drugs	100 %	100 %	88 %	100%	0.235
The assistant can confirm the use of the simulation module for self-learning	86 %	42 %	86 %	38%	0.001
PHARMACY DEPARTMENT INTRANET					
The assistant is able to show the login page for two items available on the Intranet (eg IV guide, pumps portal, cabinets portal)	90 %	69 %	100 %	0%	<0.001
The assistant knows what to do in case of a technical failure	NA	NA	NA	19%	NA
The assistant use the "contact" form for her demands to the pharmacy	NA	NA	NA	92%	NA
The assistant can identify the peremption date and interpret it correctly	NA	NA	NA	100%	NA
The assistant can report an adverse drug effect	NA	NA	NA	19%	NA
ABBREVIATIONS					
The assistant knows the list of unauthorized abbreviations	NA	NA	NA	23%	NA
ANTIBIOTICS					
The assistant knows the rules of antimicrobial drugs use	NA	NA	NA	63%	NA
HAZARDOUS DRUGS					
The assistant knows the rules of self protection during the handling of hazardous drugs	NA	NA	NA	54%	NA

NA : Non Applicable