

BACKGROUND

- Pharmacy practice is highly regulated and the drug-use process is complex in patient care areas
- Pharmacists are responsible of the drug-use process and audits should be performed to insure a safe and optimal drug circuit.

PURPOSE

- 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 in-patients care areas of a 500-bed teaching hospital.
- An audit was conducted annually.
- A paper checklist of 26 to 35 criteria grouped in 13 categories was used during a 2 week round of healthcare unit.
- Two research assistant evaluated the conformity of each criteria per patient care areas (e.g. compliant, partially compliant or not compliant) by direct observation.
- A conformity report was written, checked by decentralized clinical pharmacists and transmitted to patient care area managers with suggested corrective measures.

RESULTS

- Twenty-seven patient care areas have been audited each year since 2012 .
- The intermediate conformity were 71%, 65%, 77%, 70% and 73%.
- The global conformity were 71%, 65% , 78%, 64% and 62%.
- Between 2015 and 2016, a significant decrease in conformity was observed for the following six criteria:
 - Presence of a yellow bin for pharmaceuticals wastes
 - Presence of a drug tray for resuscitation carts without expired drugs
 - Nurse or assistant-nurse knowledge about :
 - ⇒What to do in case of a technical problems with drug related technologies
 - ⇒How to report an adverse drug reaction
 - ⇒Where they can find antimicrobial drug use rules
 - ⇒How to use personal protection equipment when administering
- Between 2015 and 2016, a significant increase in conformity was observed for two criteria related to the medication reconciliation process.

	2012	2013	2014	2015	2016	p value (2015 vs 2016)
Storage						
Cleanliness - 100 % of the storage and preparation areas are clean	77%	96%	92%	93%	78%	0,125
List and quotas - 100 % of drug's stock in the unit respect authorized lists and quotas	77%	58%	62%	59%	67%	0,573
List - No concentrated electrolytes except authorized by policies and procedures	96%	81%	88%	96%	96%	1
Samples - No medication samples	100%	96%	96%	100%	93%	0,150
Expiration - 100% of drugs have not expired	42%	19%	35%	22%	7%	0,125
Returns - presence of a tray for returns	68%	54%	96%	67%	85%	0,111
Stock securisation - no medication can be steal by a patient	NA	NA	NA	100%	96%	0,313
Waste						
Waste - Presence of a yellow bin for pharmaceuticals wastes	58%	62%	100%	89%	62%	0,021
Controlled substances						
Control sheets - 100% of control sheets are active	96%	100%	96%	96%	89%	0,639
List - No concentrated opiates except authorized by policies and procedures	100%	100%	100%	100%	100%	1
Refrigerators						
Thermometer - The fridge have a glycol thermometer	65%	68%	80%	93%	93%	1
Registry - 100% of the required temperature values (ie min / max / current) are available for 14 days before the visit	30%	18%	16%	26%	33%	0,551
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%	78%	0,484
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%	32%	0,319
Cleanliness - 100 % of the carts are cleanly	21%	71%	86%	58%	68%	0,501
Drawer - 100% of the drugs contained in the drawers carts are included in the common unit drug list	57%	29%	29%	37%	53%	0,328
Automated medication dispensing cabinets						
Documentation - 100% of the available documentation on cabinets is up to date and the Pharmacy binder is present	58%	43%	100%	67%	83%	0,248
Cleanliness - 100 % of the automated medication dispensing cabinets are clean	100%	100%	92%	83%	100%	0,063
Medication reconciliation						
100% of the admissions have a medication reconciliation	43%	63%	67%	58%	91%	0,011
100% of the medication reconciliation evaluated (n=5) are congruent (addressograph, allergy, drug identification, date, nurse signature)	71%	58%	53%	12%	48%	0,016
Documentation						
No pre-written prescription preprinted unless authorized	96%	88%	95%	73%	85%	0,277
100% of preprinted medication administration records are up to date	85%	80%	100%	95%	100%	0,237
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%	74%	0,821
Smart pumps 100% of doses administered are consistent with the procedure	58%	43%	46%	47%	77%	0,056
Resuscitation carts						
Presence of a full tray without expired drugs	100%	100%	88%	100%	79%	0,016
The assistant can confirm the use of the simulation module for self-learning	86%	42%	86%	38%	21%	0,174
Intermediate conformity (n=25 or 26)	71%	65%	77%	70%	73%	
Pharmacy department Intranet (a single assistant-nurse (AN) is evaluated as a proxy measure)						
The AN 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%	1
The AN knows what to do in case of a technical failure	NA	NA	NA	19%	0%	0,017
The AN use the "contact" form for her demands to the pharmacy	NA	NA	NA	92%	81%	0,223
The AN can identify the peremption date and interpret it correctly	NA	NA	NA	100%	100%	1
The AN can report an adverse drug effect	NA	NA	NA	19%	0%	0,017
Abbreviations						
The AN knows the list of unauthorized abbreviations	NA	NA	NA	23%	22%	0,941
Antibiotics and High Alert Medication						
The AN knows what is a HAM and knows policies and procedures	NA	NA	NA	NA	56%	NA
The AN knows the rules of antimicrobial drugs use	NA	NA	NA	63%	30%	0,024
Hazardous drugs						
The AN knows the rules of self protection during the handling of hazardous drugs	NA	NA	NA	54%	4%	<0,001
Global conformity (n=26, 34 or 35)	71%	65%	78%	64%	62%	

NA = The analysis was not performed. These criteria were added in 2015

DISCUSSION

- While this audit has been conducted since 2012, we observed a plateau in intermediate conformity but a decrease in global conformity that can be explained by the addition of nine criteria overtime and the fact that some criteria relied on the evaluation of a single respondent (e.g. the assistant-nurse available at the time of the audit)
- Initial criteria were developed to audit the drug-use process itself while the additional criteria added in the last two audits were developed to better evaluate the knowledge and the use of the intranet and the drug-related technologies (e.g. carts and automated dispensing cabinets).
- As audits are performed by different research assistant every year, there might be some variability between raters regarding "partial conformity".
- External accreditation visits can contribute to an upward shift of the results (e.g. last visit in December 2014).

CONCLUSION

- Periodical audits of the drug-use process is essential to ensure a safe and optimal drug circuit. This study demonstrates it is feasible to conduct such audit periodically.
- While a 100% conformity should be targeted by all stakeholders for all criteria, this study shows it is not realistic to reach full conformity, considering numerous factors. While decentralized pharmacists in patient care programs can contribute to optimal direct patient care, a centralized audit of the drug-use process is necessary to ensure a transversal evaluation of the drug-use process.
- New strategies should be identified and considered to further improve the conformity of the drug-use process.