Compliance of Practices Regarding Preparation and Administration of Medication in a Mother-Child University Center

Lydia Taïbi[1], Stéphanie Duval[2], Véronique Pelchat[2], Suzanne Atkinson[1], Jean François Bussières[1,3]
[1] Pharmacy Practice Research Unit, CHU Sainte-Justine, Montreal, [2] Nursing Directorate, CHU Sainte-Justine, Montreal, [3]Faculty of Pharmacy, Université de Montréal, Montreal, Quebec, Canada

Introduction

- The medication circuit is composed of many steps and various professionals are involved. This complex process can lead to errors.
- Nursing professionals step in at the end of the medication circuit. Periodic audits help maintain quality and safe patient care.

Objectives

- To describe the compliance to standards of practice to ensure safe medication preparation and administration.

Methods

Design

- Descriptive, cross-sectional audit
- October 1st to November 17th, 2023

Audit

- Two standardized audit grids were developped in collaboration between pharmacy and nursing departments:
  - one for enteral medication
  - one for parenteral medication
- 16 descriptive criteria
- 74 conformity criteria (rated as Compliant, Non compliant, Non applicable)
- 6/74 conformity criteria were excluded because of divergent interpretations
- Category of observations were:
  - General description of the observed dose and setting
  - General description of pre-administration steps
  - Medication preparation steps
  - Labeling and documentation
  - Independent double check
  - Bedside transport, patient identification, administration
  - Use of smart pump library, tubing labeling, presence of flushing valve (applicable if IV medication or fluids)
  - Interruptions and general comments
- Conducted by nurses and research assistants previously trained
- Auditees were nurses, auxiliary nurses, nursing candidate, respiratory therapist. Nursing students were excluded.

Analysis

- A convenience sample of 400 observations was targeted.
- Conformity rate was calculated by using only applicable observations.
- Descriptive statistic were done.

Results

Audit description

- 394 observations
- 21 units (11 inpatient units, 9 ambulatory/rehabilitation schools)
- Mean of 19 ± 14 observations per unit (min = 1, max = 46)
- 44 auditors (median[min-max] of 5[1-55] audits/auditor)
- Auditees were nurses (82%, 318/389), auxiliary nurses (14%, 53/389), nursing candidates (4%, 17/389) and respiratory therapist (<1%, 1/389)
- Day shift (69%, 271/391), evening (19%, 73/391), night (12%, 47/391)
- Mean audit duration: 10 ± 9 minutes

Compliance rates

- 91% (62/68) of criteria had a compliance rate above 70%
- 16% (11/68) of criteria had a compliance rate of 100% (tab.2)
- 37% (141/386) of nursing professionals were interrupted at least once during the medication preparation (up to 5 interruptions per medication preparation)

Tab 1. Compliance per category

Category (n criteria)	Compliance (mean for all criteria)
General verification (n=12)	87%
Preparation (n=14)	87%
Labeling (n=12)	94%
Independent double check (n=13)	86%
Administration (n=14)	93%
Fluids (n=3)	77%

Tab 2. Criteria with 100% compliance

Category (n criteria)	Compliance rate
Right medication selected	392/392 (100%)
Independent double check performed (when needed)	94/94 (100%)
Right volume used (oral solution)	61/61 (100%)
Right number of tablets used (tablets)	54/54 (100%)
Right preparation steps (tablets)	31/31 (100%)
Right dilution product (iv)	48/48 (100%)
Right dilution volume (iv)	53/53 (100%)
Right dilution (iv)	61/61 (100%)
Right dilution preparation (iv)	95/95 (100%)
Right IV administration (iv)	46/46 (100%)
Infusion pump check (iv)	114/114 (100%)

Tab 3. Criteria with the lowest compliance

Criteria	Compliance
Work station cleaning	150/381 (39%)
Use of inter-syringe connector (iv)	18/44 (41%)
Cleaning of tablet cutter or mortar (tablet)	
• Before use	13/21 (62%)
• After use	11/20 (55%)
Labeling of fluid tubing	118/188 (63%)
Label check during independent double check	67/96 (70%)

Audit feedback

- Audit results were presented to all team units that were audited
- These presentations offered opportunities to discuss continuous improvement actions that could be implemented in each setting.

Discussion

- A good continous improvement culture exists in our center. This audit is part of a larger audit scheme that spans throughout the year.
- The use of separate audits questionnaires for enteral and parenteral administration facilitated the audit process and was apreciated by auditors.
- Other improvements to the audit process were discussed and will be implemented next year.
- It was the first time that rehabilitation schoools were included in the audit
- The « Comment » space on the audit grid faciliated the discussion of issues.

Conclusion

- A good compliance rate was obtained and reflects that policies and procedures are known by our nursing professionnals.
- Some practices will benefit from additional training and reminder to improve the compliance.
- The audit also served as a basis for the implementation of continuous improvement actions.

Contact: suzanne.atkinson.hsj@ssss.gouv.qc.ca **Conflic of interest**: None **Funding**: None
Poster presented at the Professional practice conference of the Canadian Society of Hospital Pharmacists, April 19-21, 2024 Niagara Falls, Ontario, Canada

urppchusj.com