IMPROVING SAFETY AND EFFICIENCY IN CYTOTOXIC COMPOUNDING THROUGH PHARMACEUTICAL INTERVENTIONS

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BACKGROUND AND IMPORTANCE

Pharmaceutical Interventions (PI) reduce medication errors and improve the safe use of antineoplastic agents. However, the lack of standardised documentation limits impact assessment. In our country, the limited published evidence highlights the need for structured recording systems to ensure visibility and measurability of these contributions.

AIM AND OBJECTIVES

To implement a standardized tool for documenting Drug-Related Problems (DRP) and associated PI within a Cytotoxic Production Unit (CPU), and to evaluate DRP types, PI characteristics, and acceptance rates.

MATERIALS AND METHODS

Prospective Observational Single-center Pilot study

Study Period

1 February → 31 August 2025

Population

Adult (≥ 18 years) **oncology patients**

Data Collection

DRP/PI: Recorded during prescription validation in Microsoft Forms® (adapted from **The PCNE Classification V 9.1**) by 3 trained pharmacists
Prescription-validation counts: extracted from the Integrated Medication Circuit Management System.

Descriptive Analysis

Coding was reviewed against the form's free-text notes to ensure consistent and accurate data entry.
Descriptive analysis was performed using Microsoft Excel®.

RESULTS

8 157 prescription validations → **257 DRP** identified → **315 PI** → **Acceptance** of physician-targeted proposals (n=180): **93.9%** (n=169) → **79.4%** of the **DRP totally solved** **0.4%** of the **DRP partially solved**

1) Of the **257 DRP identified** (Figure 1):
- 51.0% were related to **treatment safety**;
- 40.1% were related to **treatment effectiveness**;
- 8.9% other.

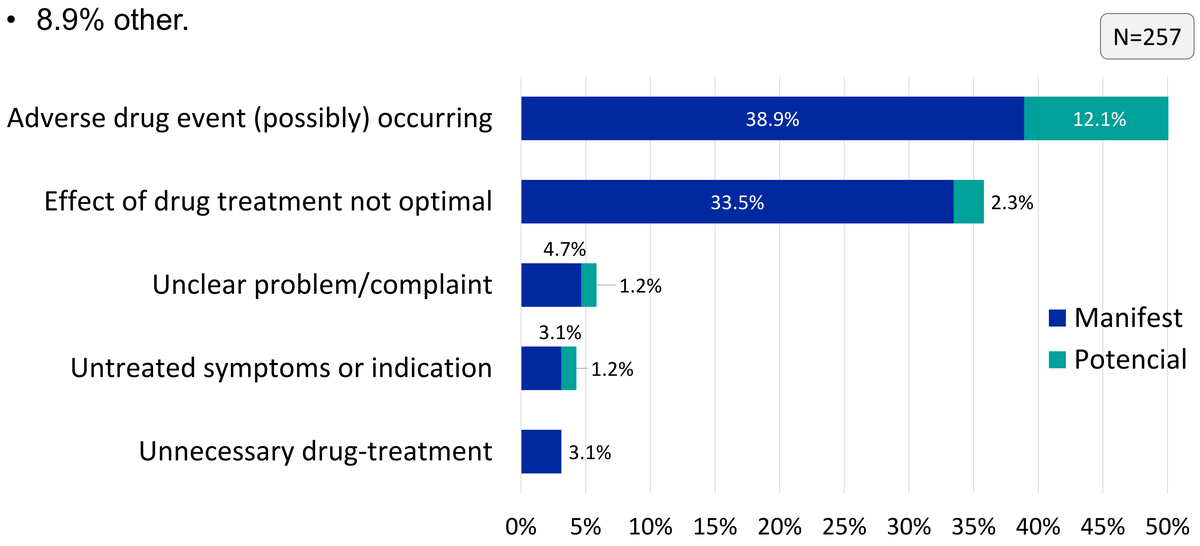

Figure 1 – DRP identified.

2) A total of **257 causes for the DRP** were observed (Figure 2), with the main ones being:
- **Drug selection:** 17.5% of the DRP were due to inappropriate drug according to guidelines/ formulary
- **Dose selection:** 13.6% of the DRP were due to drug dose too low.

Figure 2 – DRP's causes.

3) A total of **315 PI** were carried out, of which:

84.8% at the healthcare professional (HCP) level
- 67.4% intervention proposed to HCP;
- 16.1% intervention discussed with HCP.

2.5% at the patient level
- 75.0% patient (drug) counselling;
- 12.5% spoken to family member/ caregiver.

12.7% other
- 67.5% side effect reported to authorities;
- 32.5% other PI.

Out of the 315 interventions, **212** targeted **the drug level** (Figure 3).

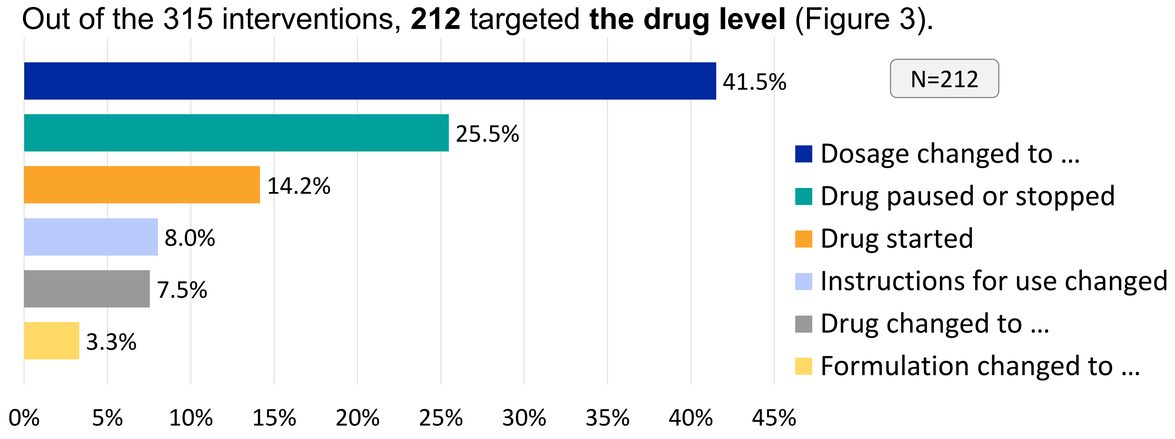

Figure 3 – PI at drug level.

4) The status of the DRP is shown in Figure 4. Of the DRP, **79.4% were totally solved**, **0.4% were partially solved**, while 20.2% remained not solved.

Figure 4 – Status of the DRP.

Study limitations
- Single-centre design
- Short study duration
- Limited user base
- Missed entries at peak times

CONCLUSION AND RELEVANCE

The implemented tool enabled consistent, quantifiable DRP/PI documentation in the CPU. High acceptance and DRP resolution rates suggest clinical benefits. However, downstream outcomes weren't assessed and only a small share of validations had recorded DRP/PI, so unit-wide impact is unclear. The low rate may reflect missed entries at peak times, narrow antineoplastics focus or already optimised prescribing. Future steps involve expanding tool usage across the team, integrating feedback for refinement, set local improvement targets and embedding PI documentation into patient clinical records to enhance continuity of care.

REFERENCES

The PCNE Classification V 9.1

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