Central Administration of Pharmaceutical Care
General Administration for Drug Utilizatin and Pharmacy Practice

Drug Therapy Problems and Medication Errors Reference Codes

Table of Contents

About NOHARMe

NOHARMe "National Office for Handling And Reduction of Medication error" is a system for gathering, analyzing, and sharing data on medication errors and drug therapy problems. It aims to raise awareness among healthcare providers on the most frequent and serious errors while handling drug products and to build a national pool of data that can be used to educate practitioners to avoid the recurrences of further errors and hence enhance good pharmacy practice. NOHARMe aims to promote safer healthcare by implementing preventive strategies and system safeguards.

NOHARMe system records two types of clinical pharmacy interventions related to pharmacotherapy:

- Drug Therapy Problems.
- Medication Errors.

Drug Therapy Problems are problems discovered during appropriateness reviews conducted on patients' medical therapy; the reviewer decides there are problems with pharmacotherapy: if, for example, it is not following the latest guidelines, or when they simply have a different opinion than the prescriber.

Medication errors are errors that occur while implementing a patient's therapeutic plan that has already been discussed and approved by clinicians. Medication errors are classified according to the stages of medication use, e.g. medication preparation, administration ... etc.; also, they are given severity ratings based on: whether they have reached a patient; whether they have caused harm; and the type of harm they caused. It takes clinical knowledge and drug use expertise to review a patient's therapeutic plan and discover Drug Therapy Problems; on the contrary, Medication Errors can be documented by anyone including patients.

Document scope

This guide is intended to help healthcare professionals classify and track medication errors and clinical pharmacy interventions in health facilities. The DTP and ME codes presented in this document can be used to categorize errors and clinical pharmacy recommendations into coded values that can be statistically analyzed to identify error patterns, identify healthcare teams training needs, and identify opportunities for improving patient care.

Drug Therapy Problems and Medication Error codes were developed by members of the Drug Utilization and Pharmacy Practice Administration under the guidance of a panel of pharmacy and healthcare experts. The coded values for error severity and causes were adopted from the National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP), a healthcare organization from the US dedicated to preventing medication errors.

Drug Therapy Problems Reference Codes

Check point			DTP identified		Action	Is it also ME?
1	Indication	Unnecessary Drug	1.1	Drug with no valid indication.	D/C	May be ME
			1.2	Therapeutic duplication (Multiple-drugs used for a condition that requires single-drug)	D/C	May be ME
			1.3	The condition is more appropriately treated with nondrug therapy.	D/C	
		NeedsDrug	1.4	Indication (medical condition) **without** medication	Add	May be ME
			1.5	Preventive drug is required to reduce risk of developing a new condition.	Add	May be ME
			1.6	Abrupt discontinuation of drug that should be gradually withdrawn	Add	May be ME
			1.7	A medical condition requires **additional** drug therapy.	Add	
2	**Selection** According to: • Allergy • Contraindication • Route/ Dosage form • Most effective drug? • Warning/ Precautions		2.1	Allergy (drug is not the most appropriate due to known or potential allergy)	Change or Monitor	May be ME
			2.2	Contraindication (selected drug is contraindicated due to comorbidity)	Change or Monitor	May be ME
			2.3	The Route of administration / Dosage form is inappropriate.	Change	May be ME
			2.4	The selected drug is not the most effective for this condition according toguidelines or patient's response	Change or Monitor	May be ME
			2.5	Alert/Warning due to risk factors.	Change or Monitor	May be ME
3	**Drug Interactions**		3	A drug interaction that may affect effectiveness or safety	D/C, Modify or Monitor	May be ME
4	**Dosing Regimen** • Dose / interval According to: ✓ Indication ✓ Age ✓ Weight ✓ Renal & Liver function ✓ Patient's response		4.1	Dose/ interval is not appropriate according to ✓ Indication ✓ Age ✓ Weight ✓ Renal & Liver function ✓ Patient's response to the drug (effect/ safety)	Change dosing regimen	May be ME
	Duration		4.2	Duration of drug therapy is not appropriate (too short/ long).	Stop or Extend	May be ME

5	**Instructions for preparation/ Administration** • Administration rate • Dilution • Compatibility • Administration Time (to meals, sleep or sequence)	5.1	The Administration rate may affect effectiveness or safety	Modify Instructions	May be ME
		5.2	Instructions for dilution may affect effectiveness or safety	Modify Instructions	May be ME
		5.3	Incompatibility may affect effectiveness or safety	Modify Instructions	May be ME
		5.4	The Administration time is may affect effectiveness or safety	Modify Instructions	
6	**Monitoring** • Adverse Drug Reaction • Biochemical (Labs- C&S)	6.1	Initial or additional monitoring is needed	Order	May be ME
		6.2	The drug causes an undesirable effect/ unpredicted Allergic reaction(although initial appropriate selection and dosing)	D/C or Monitor	
7	**Adherence**	7.1	The patient does not understand the instructions.	Provide info	
		7.2	The patient forgets to take the medication.	Provide info	
		7.3	The patient prefers not to take the medication.	Pt. discussion	
		7.4	The patient cannot afford the drug.	Provide alterative	
		7.5	The drug product is not available for the patient.	Provide alterative	
		7.6	The patient cannot swallow or self-administer the drug appropriately.	Provide info or change	

Medication Errors Reference Codes

Od	Ordering Errors (O d) (Physicians)	Decision error
1.1	Drug with no valid indication	
1.2	**Therapeutic** Duplication (Phys. prescribed two drugs from the same or different class without additional benefit or rationale)	
1.3	The condition is more appropriately treated with nondrug therapy	
1.4	Indication (medical condition) **without** medication (Phys. didn't initiated a drug that is needed for managing pt. condition)	
1.5	Preventive drug is required to reduce risk of developing a new condition.	
1.6	Abrupt discontinuation of drug that should be gradually withdrawn	
1.7	A medical condition requires additional drug therapy	
2.1	Allergy: Physician prescribed drug for pt. that is known to be allergic to.	
2.2	Drug Contraindication (Absolute)	
2.3	Wrong Route of administration or Dosage form (phys. wrote a route of administration by which drug can **NEVER** be given) (Phys. wrote a dosage form that is not available by manufacturer)	
2.4	The selected drug is not the most effective for this condition	
2.5	Alert/Warning due to risk factors	
3.0	Drug interaction (X or avoid)	
4.1	Wrong Dosing regimen (Dose/ Frequency) Outside the dose range / exceeding maximum dose / subtherapeutic	
4.2	Wrong Duration (Phys. wrote a regimen duration that is too long or short)	
5.1	Wrong Administration rate (Phys. wrote IV flow rate by which drug can **NEVER** be given-Phys. wrote IV flow rate that is not appropriate for condition)	
5.2	Wrong Dilution instructions (Phys. wrote Dilution instructions that makes drug too concentrated or diluted than reference)	
5.3	Wrong Compatibility instructions	
5.4	The Administration time is may affect effectiveness or safety	
Op	**Ordering Errors (O p) (Physicians)**	**Process/ system error**
1	Wrong patient (Phys. wrote a treatment for a pt. in the sheet of another one)	
2	Incomplete or wrong patient information (e.g. Name- Number – Age – Wt. – Ht. history - diagnosis)	
3	Wrong Drug Name (Phys. intended to write a drug but falsely wrote name of another drug)	
4	Illegible Hand writing (unclear handwriting|)	
5	Wrong Strength (Phys. wrote a Strength that is not available by manufacturer and cannot be used)	
6	Unapproved Abbreviations	
7	Wrong Decimal point (Trailing zero -No leading zero)	
8	Incomplete prescribing instructions (e.g. dose- concentration –duration-Dilution- instructions are NOT WRITTEN AT ALL)	

9	Repetition (Phys. or another phys. wrote the same drug twice in med. Sheet) (repeated) - Phys. prescribed two different brands of the same drug at the same time.
P	**Preparation Errors (P)** (Pharmacist or nurse)
1	Wrong Drug Label
2	Wrong Dilution
3	Incompatibility Error
4	Procedure of Preparation
5	Others
S	**Storage Error** (Pharmacist or nurse)
1	Wrong Storage conditions
2	Others
T	**Transcribing Errors (Nurse)**
1	Wrong Drug
2	Wrong Strength / Frequency
3	Wrong Dosage Form
4	Wrong Dilution Instructions
5	Drug Omitted
6	Duplication
7	Missed information
8	Others
D	**Dispensing Error (Pharmacist)**
1	Wrong Patient
2	Wrong label
3	Wrong Drug (Pharmacist dispensed a Drug that is different from the originally prescribed)
4	Wrong Quantity/Strength (Pharmacist dispensed a Quantity/Strength that is different from the originally prescribed)
5	Wrong Dosage form (Pharmacist dispensed a Dosage Form that is different from the originally prescribed)
6	Expired/ Deteriorated Medication
7	Omission
8	Omission due to shortage
9	Discontinued medication
10	Others
A	**Administration Errors (Mostly Nurse)**
1	Wrong Patient (Nurse gave the drug of one patient to another)
2	Wrong Drug (Nurse dispensed from stock and administered another drug that looks similar to the originally prescribed drug)
3	Wrong Dose regimen (Dose/ Frequency) Nurse gave the drug with dose/frequency that differs from what is the originally prescribed in the order

4	Wrong Administration Time (Nurse gave the drug with timing that differs from what is the originally prescribed in the order) (NOT a prescribing error)
5	Wrong Route of Administration (Nurse gave the drug with route that differs from what is the originally prescribed in the order)
6	Wrong IV Flow Rate (Nurse gave the drug with administration rate that differs from what is the originally prescribed in the order)
7	Wrong Administration Technique/ Wrong Special Instructions
8	Administration of Discontinued Drug (Nurse didn't check that drug is discontinued and gave it)
9	Drug Omission (*Nurse didn't give a drug that is prescribed and dispensed)
10	Nurse repeated administration of the same drug (Responsible nurse, Another nurse or patient duplicated administering the same drug (2 different occasions)
11	Nurse Signature error
12	Nurse gave medication without physician order
13	Others
M	**Monitoring Error**
6.1	Required monitoring not ordered (CI& DI that requires monitoring).
2	Monitoring ordered but not performed.
3	Others

Medication Error Severity and Possible Causes

	Possible causes of errors	Error severity	Description
1	Mishandled Verbal Order	**A**	No error, capacity to cause error
2	Sound alike medication	**B**	Error that did not reach the patient
3	Look alike medication	**C**	Error that reached patient but unlikely to cause harm (omissions considered to reach patient)
4	Confusing product labeling	**D**	Error that reached the patient and could have necessitated monitoring and/or intervention to preclude harm
5	Confusing drug insert	**E**	Error that could have caused temporary harm
6	Incomplete patient information	**F**	Error that could have caused temporary harm requiring initial or prolonged hospitalization
7	Misleading advertisement	**G**	Error that could have resulted in permanent harm
8	Unclear/Lacking documentation in medical records	**H**	Error that could have necessitated intervention to sustain life
9	Illegible handwriting	**I**	Error that could have resulted in death
10	Wrong Abbreviations		
11	Wrong decimal point		
12	Use of uncommon units		
13	Calculation error		
14	Lack of knowledge/ Experience		
15	Inappropriate storage conditions		
16	Inappropriate dispensing area		
17	Environmental factors (Workload-Noise - Poor communication)		
18	Lack of patient education or compliance		
19	Lack of drug information sources		
20	Other (Describe)		

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