MEDICATION INCIDENTS REPORTING

醫院管理局 HOSPITAL AUTHORITY

Missing Rx information costs

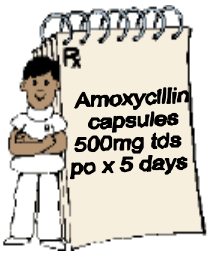
Complete prescription orders that include drug name, dosage form, dose, frequency, and route are basic to medication safety. Failure to specify all of the elements of a prescription could lead to medication errors.

Clarifying prescriptions with missing information is a time-consuming process and may impose additional costs to the healthcare system due to increased workload. At the very least, that process delays initiation of drug therapy, and interrupts healthcare professional activities. At worst, incomplete prescriptions may cause ambiguity, leaving much chance for error in interpretation. Any incorrect understanding of the intended drug, dosage, or route or frequency of administration could produce medication error. For example, where the concentration/strength of a preparation is not specified, even though there could be as little as two strengths are available in the formulary, without clarification with prescribers, an incorrect strength could be administered or dispensed. Nevertheless, the readers (nursing and pharmacy staff) have the responsibility to question all incomplete or unclear prescriptions before administering or dispensing any medications. No assumptions should be made about the prescribers' intent.

It is the prescriber's responsibility to communicate complete information to all intended readers. With nearly 50% of medication errors originating from order writing, the Institute for Safe Medication Practices (ISMP) and others have published recommendations for safe prescription writing [1]. A complete prescription should include:

- Name of the drug – generic name is preferable, unless there is a possibility for confusion because another drug has a similar name
- Drug strength
- Dosage form
- Amount to be dispensed
- Complete directions for use, including route of administration and frequency of dosing. Ambiguous orders, such as "take as directed" should be avoided unless further directions accompany them. Specific instructions reinforce proper medication use by the patient, differentiate the intended medication from other medications, and allow the dispensing staff to check the appropriate dose of the individual patient and counsel the patient.
- Duration of therapy

The Institute of Medicine (IOM) report recommends a strategy of standardising prescription writing practices to reduce adverse events. Abbreviations are the major pitfalls because they can have more than one meaning. Thus, prescribers should avoid use of abbreviations as far as possible. Any hospital approved abbreviation lists should comply with ISMP recommendations [2]. In addition, all prescriptions should be written using the metric system except for therapies that use standard units. The term "UNITS" should be spelled out as the letter "U" as well as the "q" as in qid, qd could easily be misread. A leading zero should always precede a decimal expression of less than one. The use of computerised order entry can provide legible and complete information with the added benefits of clinical decision support software, which could reduce potential medication errors. Nevertheless, the use of abbreviations or expressing doses in a manner that may cause confusion should not be used be it handwritten prescription or electronic media.



Studies for evaluating medication order writing have suggested that more emphasis be placed on the education in prescription writing and periodic reviews of prescription studies to identify any problem areas [3-6]. A system that facilitates quantification of prescription incompleteness provides a mechanism for identifying trends and these information could be presented and feedback to the prescribers and other disciplines to increase awareness. Educational efforts could be initiated to address specific prescription writing problems that are detected by the monitoring system in order to enhance medication safety.

References

1. Wehmeyer AE and Tedeski LA. Evaluation of medication order writing at a community teaching hospital. ASHP-Midyear Clinical Meeting 2000;35;P-556D.
2. http://www.ismp.org/MSAarticles/specialissuetable.html
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4. Howard ED, DiRusso B, Leveille NL. Written medication order accuracy audit. ASHP-Midyear Clinical Meeting 1997;32;P-39E.
5. Killion DS, Putnam LA, Jackman BJ. ASHP-Midyear Clinical Meeting 1992;23; P-196D.
6. Ingrim NB, Hokanson JA, Guernsey BG et al. Physician noncompliance with prescription writing requirements. Am J Hosp Pharm 1983;40;414-417.

Chemotherapy Overdose

A patient developed signs of toxicity including severe vomiting and deafness after receiving 190mg of cisplatin instead of 31mg as prescribed. Nurses wrongly transcribed the dose of cisplatin for another drug (etoposide) from a standardised preprinted treatment protocol onto the infusion sheet. The overdose was not noted. Replacement potassium chloride and magnesium were given to patient and the electrolyte levels were closely monitored.

☺ Safety tips

- The dosage should be double checked, preferably independently by another colleague for high risk drugs like chemotherapy before preparation and administration to ensure the dosing is appropriate.
- Cisplatin doses greater than 100mg/m^2 once every 3-4 weeks are rarely used. Dosage limits for antineoplastics should be established, communicated with staff and placed in strategic locations where these drugs are prescribed, stored, dispensed, and administered.
- Transcription should be avoided as far as possible

Drug Allergy Documentation

Prepoperative prophylaxis amoxycillin was prescribed and taken by a patient an hour prior to the surgery at home. During routine pre-operation checking, the patient alerted the nursing staff of a prior allergy to amoxycillin and ampicillin. The patient was conscious and had no other discomfort apart from red rash developed on his face and neck. The surgery was cancelled subsequently and the patient was admitted for observation.

☺ Safety tips

- Drug allergy warning should be incorporated into the clinical management system which provides a computerized drug profile of individual patients, enabling prescriptions ordered through MOE system to be checked by pharmacy staff against allergy history.

An inpatient with a documented allergy history to prochlorperazine was prescribed and administered with the drug. The patient received a total of two doses. Both doctor and nursing staff were unaware of the patient's drug allergy history despite a red "Drug allergy" label being fixed onto the drug cardex.

☺ Safety tips

- Patients drug allergy history should always be assessed, documented in medical chart/record, MAR and checked before prescribing or administering a new therapy.

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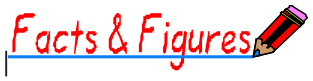
Table 1 Distribution of Incidents

	1 Q/2002		2 Q/2002	
	Freq.	%	Freq	%
Distribution of Cases				
In-patient	1825	39.9	1694	39.4
Out-patient	2745	60.1	2603	60.6
Initiator of Reporting				
Medical	14	0.0	19	0.4
Nursing	406	8.9	395	9.2
Pharmacy	4151	90.8	3881	90.3
Others	1	0.0	3	0.1
Staff Involved				
Medical	4199	88.9	3941	88.6
Nursing	363	7.7	361	8.1
Pharmacy	143	3.0	126	2.8
Others	18	0.4	19	0.4
Patient Outcome				
Patient related	275	6.0	226	5.3
Non-patient related	4295	94.0	4071	94.7

Table 2: Distribution of errors

	1 Q/2002		2 Q/2002	
	Freq.	%	Freq.	%
Prescribing Error				
Wrong Drug	301	10.6	248	9.2
Wrong Dosage form	160	5.7	137	5.1
Wrong strength/dosage	1006	35.6	904	33.7
Wrong Duration	214	7.6	193	7.2
Wrong Frequency	400	14.1	310	11.6
Wrong Route	26	0.9	43	1.6
Wrong Abbreviation	59	2.1	60	2.2
Wrong Instruction	101	3.6	182	6.8
Wrong Patient	55	1.9	45	1.7
Double Entry	62	2.2	84	3.1
Drug Omission	46	1.6	87	3.2
Others	397	14.0	390	14.5
Rx Incompleteness				
Missing Drug Name	40	2.7	40	2.9
Missing Dosage Form	103	7.1	101	7.3
Missing Drug Strength	252	17.3	245	17.8
Missing Duration/Quantity	138	9.5	119	8.6
Missing Frequency	271	18.6	236	17.1
Missing Dose	98	6.7	83	6.0
Missing Dr. Signature	211	14.5	132	9.6
Others	342	23.5	422	30.6
Dispensing Error				
Wrong Drug	64	40.0	34	25.8
Wrong Dosage form	16	10.0	27	20.5
Wrong Strength/dosage	31	19.4	35	26.5
Wrong Quantity	4	2.5	6	4.5
Wrong Patient	14	8.8	8	6.1
Wrong label information	18	11.3	11	8.3
Double dispensing	0	0	0	0
Drug Omission	2	1.3	3	2.3
Others	11	6.9	8	6.1
Administration Error				
Wrong Drug	23	13.1	17	11.2
Wrong Dosage form	2	1.1	2	1.3
Wrong Dose	11	6.3	15	9.9
Wrong Flow rate	21	11.9	11	7.2
Wrong Patient	13	7.4	10	6.6
Wrong Route/method	3	1.7	9	5.9
Wrong Time	9	5.1	12	7.9
Extra Dose	38	21.6	31	20.4
Dose Omission	44	25	31	20.4
Unordered Drug	1	0.6	3	2.0
Others	11	6.3	11	7.2



Tables 1-5 summarised the medication incident (MI) statistics for the first two quarters of 2002 (Jan-Mar 02 and April -June 02). Of 40 eligible hospitals/institutions, a total of 4,570 and 4,297 reports were received during 1st and 2nd quarters of 2002, respectively. Approximately 94% of them were rectified before reaching the patients and approximately 99% of incidents with no impact on patients.

"Nil incident to report" was submitted by 4 hospitals in both quarters and a hospital had no return in the 2nd quarter of 2002. The rates of reported MIs were 59 and 54 per 100,000 items dispensed in the 1st and 2nd quarters of 2002, respectively.

Table 3: Distribution of incidents by error type

	1 Q/2002		2 Q/2002	
	Freq.	%	Freq.	%
Prescribing	2827	61.2	2683	61.7
Incomplete Rx	1455	31.5	1378	31.7
Dispensing	160	3.5	132	3.0
Administration	176	3.8	152	3.5

Table 4 Distribution of incidents by attributed causes

Underlying Causes	1 Q/2002		2 Q/2002	
	Freq.	%	Freq.	%
Communication failure/misinterpretation of order	47	1.0	44	1.0
Non-compliance with policies/procedures	288	6.1	310	6.9
Incorrect computer entry	151	3.2	139	3.1
Miscalculation	8	0.2	16	0.4
Mislabelling	24	0.5	61	1.4
Similar Drug Name/Appearance	56	1.2	74	1.6
Transcription	272	5.8	227	5.1
Distraction	926	19.7	637	14.2
Inadequate Knowledge/Skills	179	3.8	129	2.9
Lack of Supervision	36	0.8	5	0.1
Complicated Dosage Regimen	17	0.4	11	0.2
Illegible handwriting	99	2.1	75	1.7
Unclear Prescription	57	1.2	24	0.5
Commercial Packaging/Product Labelling	2	0.0	4	0.1
Medicine unavailable	5	0.1	7	0.2
Storage Problem	4	0.1	1	0.0
Unknown	1991	42.4	2188	48.8
Others	532	11.3	533	11.9

Table 5 Distribution of incidents by severity

	1 Q/2002	2 Q/2002
	Freq.	
No. of preventive interventions	4295	4071
No. of incidents	275	226
Severity Index of incidents		
1	206	163
2	61	51
3	7	9
4	1	2
5	0	1
6	0	0

6= an incident occurred that resulted in patient death
5= patient received medication incorrectly and sustained permanent injury
4= patient injured by the error and required either antidote to reverse the process or transferred to a higher level of care
3= patient required increasing monitoring with a change in vital sign as a result of the incident but no ultimate injury
2= patient required increasing monitoring as a result of the incident but no change in vital sign and no patient injury
1= incident occurred that did not result in patient injury