



Drug Safety Review

Medication errors in the emergency department

Medication errors can and do occur in all clinical settings. However, the complexity and fast-paced nature of care provided in the emergency department (ED) enhance the probability of errors occurring. Studies reporting medication errors in the ED setting have typically been limited to only one ED.

Data collected through USP's two national voluntary medication error-reporting programs—MED-MARX and the Medication Errors Reporting (MER) Program—represent one of the largest reviews of ED errors reported from multiple facilities. (MER is presented in cooperation with the Institute for Safe Medication Practices.) An analysis of medication error records from both MER (1991-June 2003) and MED-MARX (calendar year 2002) uncovered 3,516 records of errors in the ED.

EDs were ranked as the fifth leading location of medication error in calendar year 2002. More than 300 unique facilities collectively reported more than 3,440 medication errors. The majority (94.8%) of errors did not result in patient harm. However, 5.2% did result in various levels of harm, with two fatalities reported.

Improper dose/quantity and pre-

scribing errors (27%/22%) were the most common types of error committed (see Table 1). Performance

medication error. Heparin was followed by ceftriaxone (3.0%), insulin (2.9%), meperidine (2.4%), and levofloxacin (2.4%). Patients appeared to receive medications for which they had previously reported allergies.

Table 1

Type of error

There were 3,308 records associated with 3,644 types of error selections.

Type of error	n	Percent (%)
Improper dose/quantity (wrong dose)	891	26.9
Prescribing error	721	21.8
Omission error	583	17.6
Unauthorized drug	410	12.4
Wrong patient	197	6
Extra dose	177	5.4
Wrong drug preparation	175	5.3
Wrong time	158	4.8
Wrong administration technique	144	4.4
Wrong route	138	4.2
Wrong dosage form	50	1.5

Table 2

Cause of error

There were 3,438 records associated with 5,880 types of error selections.

Top 10 causes of error	n	Percent (%)
Performance deficit	1,374	40
Procedure/protocol not followed	654	19
Communication	566	16.5
Knowledge deficit	486	14.1
Documentation	304	8.8
Calculation error	247	7.2
Verbal order	211	6.1
Written order	183	5.3
Computer entry	172	5
Transcription inaccurate/omitted	157	4.6

deficit was cited as the leading cause of error (see Table 2). There were nearly 400 unique products reported, with heparin at 7.6% the most common drug reported in a

national database to identify trends in the nature and type of medication errors can assist members of the healthcare team to identify risk situations and implement appropriate preventive strategies.

Conclusions

Based on these findings, the following conclusions can be drawn:

- Nearly 6% of the errors resulted in some form of harm.
- Distractions were the leading contributing factor to errors.

• Omission errors were associated with patient deaths.

• Errors involving improper dose/quantity (wrong dose) were associated more often with harmful outcomes than any other type of error.

Implications

The goal of reducing the risk of a medication error must be addressed through multidisciplinary and systems-related changes. Using a national

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