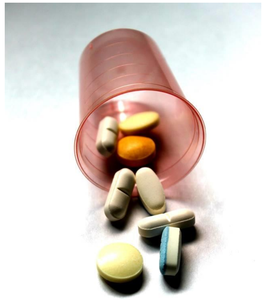

The Severity of Medication Administration Errors Detected Using Three Different Research Methods

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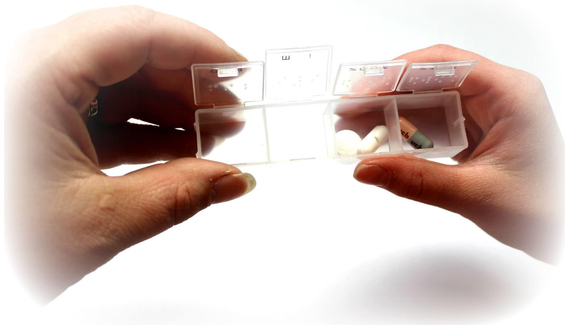
Medication administration is an important daily nursing task that involves great potential for errors and patient harm.

The aim of this presentation is to describe the severity of medication administration errors detected using three different research methods.

The study was conducted in a university hospital in Finland.
Three types of data-sets were analyzed:
1) medication-related incident reports (n=671)
2) randomly selected patients' medical records (n=463) using the Global Trigger Tool (GTT) method and
3) observations (n=1058) of medication administration by nurses' which were followed by a review of medical record (n=122).

In the secondary analysis, only medication administration errors (MAEs) detected by the three aforementioned methods are analyzed and described.



Most of the MAEs detected (n=443, 98.2%) reached the patient. Still, 62.1% of MAEs did not cause harm to patients (Categories B and C), although 24.2% of MAEs required patient monitoring to confirm the lack of harm (Category D). MAEs that were more likely to cause harm to patients (Categories E, F, H) occurred in 13.7% of cases.

When the severity of MAEs were compared using the different detection methods, the observational method revealed fewer MAEs that were more likely to cause harm (3.5%), whereas the GTT method revealed the most MAEs that were more likely to cause harm (22%) followed by incident reports (18%). Pearson's Chi-Square test demonstrated a statistically significant difference in the total number of MAEs detected by the different methods and as well as in the number of MAEs that were likely to cause harm ($p < .001$).

Of the 671 medication-related incident reports, 39.8% (n=267) were MAEs. The GTT method revealed 153 medication errors, 26.8% (n=41) of which were MAEs. Observation of 1058 medication administration events revealed 235 medication errors, 61% (n=143) of which were MAEs.

The severity of MAEs (n=451) was classified using the taxonomy from The National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP 1998). The taxonomy's classification of the severity of medication errors (patient outcome) ranges from Category A (no error, no harm) to Category I (error, death).

Table 1. Severity of medication administration errors (n=451), f (%) and Pearson's Chi-Square test to discover if medication administration errors detected using incident reports, Global Trigger Tool method (GTT), and observational method differed in terms of severity.

NCCMERP (1998) classification of the severity of medication errors:
A: Circumstances or events that have the capacity to cause error
B: An error did not reach the patient
C:An error reached the patient, but did not cause patient harm
D: An error reached the patient and required monitoring to confirm that it resulted in no harm to the patient
E: An error may have contributed / resulted in temporary harm and required intervention
F: An error may have contributed / resulted in temporary harm and required initial or prolonged hospitalization
G: An error may have contributed to or resulted in permanent patient harm
H: An error that required intervention necessary to sustain life
I: An error that may have contributed to or resulted in the patient's death.

Severity of errors	Incident reports (n=267) f (%)	GTT method (n=41) f (%)	Observational data (n=143) f (%)	Total (n=451) f (%)
B	5 (1.9)		3 (2.1)	8 (1.8)
C	154 (57.7)	19 (46.3)	99 (69.2)	272 (60.3)
D	60 (22.5)	13 (31.7)	36 (25.2)	109 (24.2)
E	40 (15.0)	7 (17.1)	5 (3.5)	52 (11.5)
F	5 (1.9)	2 (4.9)		7 (1.5)
H	3 (1.1)			3 (0.7)
No harm / patient monitoring (B, C, D)	219 (82.0)	32 (78.0)	138 (96.5)	389 (86.3)
Harm to patient (E, F, G, H, I) * $p < .001$.	48 (18.0)	9 (22.0)	5 (3.5)	62 (13.7)

MAEs are the type of errors that are the least likely to be prevented before reaching the patient. In this study, the documented severity of MAEs depended on the method used. These findings were expected as the GTT method is specifically designed to identify situations that cause harm to patients, whereas the observation method rarely identifies these situations because of the limited time of observations.

More information is required to increase the safety of the medication administration process and to prevent harm to patients.

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