

## PERCEPTIONS ABOUT MEDICATION ERRORS: ANALYSIS OF ANSWERS BY THE NURSING TEAM

Elena Bohomol<sup>1</sup>  
Lais Helena Ramos<sup>2</sup>

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*Medication error is defined as any type of error in the prescription, transcription, dispensing and administration process which could bring about serious consequences or not. This descriptive and exploratory study assesses four scenarios showing situations from nursing practice. The study group was composed of 256 professionals and 89 questionnaires were analyzed. The answers given by the registered nurses were compared with those of licensed practical nurses and care aids. They should express their opinion if the situations represented a medication error or not, if it had to be communicated to the physician or an incident report had to be written. The two groups showed uniform answers. They expressed the same doubts to label the situation as an error and which measures should be taken, suggesting the need for further discussion on the matter within the institution.*

*DESCRIPTORS: medication errors; precipitating factors; nursing; quality*

## PERCEPCIONES ACERCA DE LOS ERRORES DE MEDICACIÓN: ANÁLISIS DE RESPUESTAS DEL GRUPO DE ENFERMERÍA

*El error de medicación se define como cualquier error en el proceso de prescripción, dispensación o administración de una medicación, pudiendo o no traer consecuencias serias. En este estudio, de carácter descriptivo y exploratorio, son evaluados cuatro escenarios con situaciones de práctica de enfermería. El grupo profesional fue constituido de 256 personas y fueron estudiados 89 cuestionarios. Fueron comparadas las respuestas dadas por los enfermeros con las de técnicos y auxiliares de enfermería que deberían opinar si las situaciones representaban o no un error de medicación, si había necesidad de notificación al médico o de completar un informe de ocurrencias. Los resultados demostraron una uniformidad en las respuestas, que traducían dudas si la situación era un error o no, y cuales medidas deberían ser tomadas, evidenciando la necesidad de discutir el tema dentro de las instituciones.*

*DESCRIPTORES: errores de medicación; factores desencadenantes; enfermería; calidad*

## PERCEPÇÕES SOBRE O ERRO DE MEDICAÇÃO: ANÁLISE DE RESPOSTAS DA EQUIPE DE ENFERMAGEM

*O erro de medicação é definido como qualquer erro no processo de prescrição, dispensação ou administração de medicamentos, podendo ou não trazer conseqüências adversas. Neste estudo, de caráter descritivo e exploratório, são avaliados quatro cenários, com situações da prática de enfermagem. O grupo profissional foi constituído por 256 pessoas e foram analisados 89 questionários. Foram comparadas as respostas dadas pelos enfermeiros com as dos técnicos e auxiliares de enfermagem nas quais deveriam opinar se as situações representavam ou não um erro de medicação, se havia necessidade de notificação ao médico e do preenchimento de um relatório de ocorrências. Os resultados demonstraram uniformidade nas respostas, que traduziam dúvidas se a situação era um erro ou não e quais medidas deveriam ser tomadas, evidenciando a necessidade de discutir o tema dentro das instituições.*

*DESCRITORES: erros de medicação; fatores desencadeantes; enfermagem; qualidade*

<sup>1</sup> RN, M.Sc. in Nursing. Faculty, São Camilo University Center, e-mail: ebohomol@denf.epm.br; <sup>2</sup> RN, Ph.D. in Public Health, Adjunct Professor, e-mail: laisramos@denf.epm.br. Member of the Study and Research Group on Health Service Administration and Nursing Management. São Paulo Federal University, Paulista Medical School

## INTRODUCTION

Talking about error, how and why it happens, whether in health or in any other area, does not only mean talking about questions related to the human mind, but also analyzing and understanding the external circumstances and environmental factors favoring the error. These circumstances, known as "latent errors", create beneficial conditions for individuals to make mistakes and should be considered as important for analysis<sup>(1)</sup>.

Error is defined as "the act or effect of making a mistake; false judgment; oversight, fault; incorrectness, inexactness, deviation from the correct course, irregularity, flaw"<sup>(2)</sup>. According to quality experts, error is any deviation with respect to the level of compliance with needs, agreed upon between supplier and client<sup>(3)</sup>.

Risks for the occurrence of errors exist and need to be examined. Errors can cause deaths and injuries, including in hospitals unfortunately. Within a wide range of studies about errors in the health area, medication errors attract attention. Many researchers are interested in this subject, as they are considered frequent in hospitals, can cause patient damage and increase hospitalization costs<sup>(4)</sup>. It is estimated that 2.0% of patients admitted to American hospitals are victims of health damage due to medication errors, and that each error results in an additional cost of about five thousand dollars, excluding legal issues<sup>(5)</sup>.

Medication error is any error committed in the medication prescription, dispensation or administration process, which may cause negative consequences or not<sup>(6)</sup>.

The National Coordinating Council for Medication Error Reporting and Prevention, founded in the United States in 1995, represents consumers, health care providers, physicians and institutions, the pharmaceutical industry and supervising entities. The council defines medication error as "any preventable event that may cause or lead to the inappropriate medication use or patient harm, the medication is the control of the health-care professional, patient or consumer. Such events may be related to professional practice, health-care products, procedures and systems including: prescribing; order communication; product labeling, packing and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use"<sup>(7)</sup>.

Errors can be categorized in different ways. The American Society of Health-System Pharmacists developed a taxonomy for its classification considering types, causes, place of occurrence, therapeutic classification of the involved medication and result for the patient, permitting research, effective data analysis and comparisons. This society presents a list of the twelve most common errors, including: prescribing error; omission error; wrong-time error; unauthorized drug error; improper dose error; wrong-dosage form error; wrong-drug preparation error; deteriorated drug error; monitoring error; compliance error; and other medication error<sup>(8)</sup>.

Medication errors are present in any step of the process, including prescription, preparation and dispensation, administration and monitoring.

The medication administration step is the nursing team's responsibility, and can be carried out by nurses, licensed practical nurses and care aids in Brazil<sup>(9)</sup>. Consequently, when a medication error occurs, the nursing team is involved in some way or frequently even held accountable for this event.

When this kind of incident occurs, a person experiences countless feelings and emotions. Some authors report that the most common ones are related to guilt, horror, terror, concern about effects for the patient, loss of confidence in one's ability, anger, victim of circumstances and anger about oneself<sup>(10)</sup>. Other authors, on the other hand, mention the fear of retaliations and exposure to judgments, which inhibit the notification of these situations<sup>(11-12)</sup>.

Other sources indicate that the undernotification of these events can also be related with a lack of knowledge about what a medication error actually is, due to particular concepts or the lack of a defined institutional policy about the theme<sup>(10, 13)</sup>.

Aspects of what a medication error means, getting to know its causes, notifying the error, benefiting an environment without punishments should be taken into account with a view to implanting prevention measures and promoting a continuous quality improvement process<sup>(10-12, 14)</sup>.

## OBJECTIVES

- Verifying, in the nursing team, what a medication error consists in, its incident report notification needs and the completion of the incident report.

- Comparing the nurses' answers with those of licensed practical nurses and care aids in terms of their understanding of medication errors and conducts to be taken.

## METHODOLOGY

This non-experimental research is a descriptive / exploratory survey and was carried out at a private hospital in São Paulo city, offering 422 beds and nine adult hospitalization for medical and surgical general care units. The research project was approved by the institution's Executive Nursing Management and by the Research Ethics Committee of the college the authors were affiliated with. Data were collected in February 2002.

Data collection was based on a study carried out at a North American hospital<sup>(11)</sup> in 1999. The North American authors provided their data collection instrument for use and adaptation to the Brazilian reality. The instrument was translated to Portuguese; the clarity and objectiveness of its content were analyzed by a committee of four nurse unit coordinators, four nurse educators and one pharmacist; its structure was analyzed by a statistician and a pilot test was carried out, whose analysis permitted the final adjustments in the data collection instrument.

The research population included nursing service professionals at the institution, with 75 nurses, 38 licensed practical nurses and 143 care aids, totaling 256 persons associated with nursing care for hospitalized patients. A sample of 82 professionals was calculated, that is, 32% of the population. Head nurses or professionals with bureaucratic-administrative activities were excluded.

One hundred twenty-four questionnaires were distributed, used a randomized table, and 90 were returned. One of these was removed because the Free and Informed Consent Form had not been properly signed. Thus, in total, 89 questionnaires were studied.

For statistical analysis, the chi-square test was chosen, with a 5% significance level, and SPSS<sup>®</sup> software was used.

To present and discuss the results, the sample was characterized in demographic terms and four scenarios were analyzed, whose situations are present in nursing care practice. For each of these scenarios, professionals had to answer three questions (yes/no):

Is this a medication error? Should the physician be notified? Should the incident report be filled out?

The opinions of secondary level professionals, called Group I, including licensed practical nurses and care aids, were compared with the opinions of higher education professionals, i.e. nurses, called Group II. This approach was chosen on the basis of the analysis of professional functions. At the research institutions, both licensed practical nurses and care aids had the same attributions, that is, they developed the same patient care activities.

## RESULTS AND DISCUSSION

The sample consisted of 49 (55%) care aids, 13 (15%) licensed practical nurses and 27 (30%) nurses.

Group I's profile was characterized by: 35 (56.5%) men; 27 (44%) between 30 and 39 years old; 26 (42%) graduated between six and ten years ago; 34 (55.8%) had worked at the institution between 0 and 2 years; 33 (54.1%) only worked at the research institution. Group II was 100% female; 13 (48.2%) between 30 and 39 years; 11 (40.7%) graduated between 3 and 5 years ago; 10 (37%) had worked at the institution between three and five years; and 17 (63%) only worked at the research institution.

Tables 1-4 show participants' answers to the scenarios. P was identified with an \* when significant and with N.S. when not significant, at the end of each table.

Table 1 - Distribution of group I and II's answers to Scenario 1: "A patient misses his midday dose of oral ampicillin, because he was doing an x-ray exam for three hours". São Paulo, 2002

Questions	Answers	Group I		Group II		X <sup>2</sup>	P
		Nº	%	Nº	%		
Is this a medication error?	Yes	8	15,1	8	34,8	0,07	0,06
	No	45	84,9	15	65,2		
Should the physician be notified?	Yes	23	44,2	12	52,2	0,62	0,35
	No	29	55,8	11	47,8		
Should the incident report be filled out?	Yes	28	51,9	10	45,5	0,80	0,40
	No	26	48,1	12	54,5		

p = N.S.

Group I (n <62) and Group II (n <27) due to unanswered questions in the questionnaire.

In Table 1, both groups considered that the situation did not evidence a medication error (84.9% and 65.2%, respectively). The conviction that this

scenario did not present a medication error was even stronger among licensed practical nurses and care aids.

Although not considered as an error, professionals' opinions were divided as to the need to notify this event to the physician and whether the incident report should be filled out.

The non administration of a drug is a medication error, characterized as an omission error<sup>(8)</sup>. In this case, the medication was an antibiotic and its omission implied a modification of its serum level, which can harm the patient.

When reflecting about this situation, the question emerges about who was responsible for administering the drug, as the patient was outside his unit. In general, professionals make all possible efforts to comply with institutional standards, mainly in terms of realizing procedures at the right time. However, this becomes impossible sometimes, when the patient is not in his room for example<sup>(13)</sup>. Hence, this circumstance needs to be clarified among professionals, providing conditions for medication administration at the right time, no matter where the patient is inside a hospital institution.

Table 2 - Distribution of group I and II's answers to Scenario 2: "At a busy surgical unit, four patients received their 8 a.m dose of intravenous antibiotics, with a four-hour delay". São Paulo, 2002

Questions	Answers	Group I		Group II		X <sup>2</sup>	P
		Nº	%	Nº	%		
Is this a medication error?	Yes	36	69,2	24	92,3	0,02	0,02*
	No	16	30,8	2	7,7		
Should the physician be notified?	Yes	37	71,2	17	70,8	1,00	0,59
	No	15	28,8	7	29,2		
Should the incident report be filled out?	Yes	48	90,6	26	100	0,16	0,13
	No	5	9,4	0	0		

\* significant for p <= 0.05

Group I (n <62) and Group II (n <27) due to unanswered questions in the questionnaire

The scenario in Table 2 focused on the delayed administration of antibiotics, as the unit was busy, and delay is considered a medication error<sup>(8)</sup>. We found a significant difference between the two groups for the first question: Is this a medication error? Although answers were affirmative (69.2% and 92.3% respectively), almost all nurses indicated this was a medication error, as opposed to licensed practical nurses and care aids.

Answers about whether the physicians should be notified were affirmative in Group I (71.2%) and Group II (70.8%). It is remarkable that nurses

considered this situation as an error, but that a different percentage indicated that the situation should be notified to the physician. Literature mentions time adjustment behaviors, in which nurses modify medication timing due to delays, unit routines, patient-related clinical motives, with a reasonable safety criterion. However, they consider that these attitudes can affect the action of an antibiotic or lead to risks of an overdose of a certain drug<sup>(13)</sup>. These situations should be seen as a source of concern, as an error cannot be corrected by solving it through another error. Time-adjustment procedures are internal agreements within teams and should not occur, as shifts change, professionals are redistributed from other units and documentation is not that clear when this type of procedure occurs.

However, when comparing answers in Table 2 and Table 1, it is surprising that professionals consider delayed medication administration as an error but do not consider omitting a dose of the same type of drug as an error. There may exist an explanation when we take into account the organizational cultural, but the question remains: what is a medication error?

Table 3 - Distribution of group I and II's answers to Scenario 3: "A patient was hospitalized at your unit with status asthmaticus at 4 a.m. on 12/25/01. Inhalation every four hours was prescribed. The nursing team omitted the 4 p.m dose on this Christmas day because the patient was sleeping". São Paulo, 2002

Questions	Answers	Group I		Group II		X <sup>2</sup>	P
		Nº	%	Nº	%		
Is this a medication error?	Yes	26	50,0	17	63,0	0,34	0,19
	No	26	50,0	10	37,0		
Should the physician be notified?	Yes	16	31,4	9	39,1	0,60	0,35
	No	35	68,6	14	60,9		
Should the incident report be filled out?	Yes	25	49,0	16	64,0	0,23	0,16
	No	26	51,0	9	36,0		

p = N.S

Group I (n <62) and Group II (n <27) due to unanswered questions in the questionnaire

Table 3 did not show significant differences between both groups' answers. Professionals' opinions were divided as to whether the situation represented a medication error (50.0% Group I and 63% Group II) and whether an occurrence report had to be filled out. The physician had to be notified according to 31.4% of answers in Group I and 39.1% in Group II.

The polarization of almost 50% - 50% about whether this situation represents an error or not, and whether the report should be filled out or not, proves

the lack of a clear understanding about what an error is and the need to notify it by means of a formal report.

One possible explanation could be that the patient was assessed by the nursing team, reaching the conclusion that sleep was a sign of no further respiratory distress and that the patient would receive his medication when he woke up.

However, in view of opinions about this scenario, there is a clear need to discuss this theme, with a view to uniform behavior inside the nursing team. Answers are in accordance with literature findings, which reports similar conducts related to opinions and notifications in this kind of event<sup>(10-11)</sup>.

Table 4 - Distribution of group I and II's answers to Scenario 4: "A physician orders *Tylox* one tablet in case of postoperative pain. At 4 p.m., the patient complained of pain, asked for the drug and was medicated. At 6.30 p.m., the patient requested a second tablet, which was given by the responsible employee". São Paulo, 2002

Questions	Answers	Group I		Group II		X <sup>2</sup>	P
		Nº	%	Nº	%		
Is this a medication error?	Yes	49	87,5	23	85,2	0,74	0,51
	No	7	12,5	4	14,8		
Should the physician be notified?	Yes	45	83,3	21	87,5	0,74	0,46
	No	9	16,7	3	12,5		
Should the incident report be filled out?	Yes	45	84,9	21	80,8	0,75	0,43
	No	8	15,1	5	19,2		

p = N.S  
Group I (n <62) and Group II (n <27) due to unanswered questions in the questionnaire

Table 4 shows the distribution of answers in Group I and II, which did not present significant differences, demonstrating uniform opinions. Both groups considered that this situation represented a medication error (87.5% and 85.2%), that the physician should be notified (83.3% and 87.5%) and that the incident report should be filled out (84.9% and 80.8%).

This scenario illustrates the nursing team's need to know about the pharmacology of the prescribed drug. If the doctor prescribed a tablet in case of pain and the patient asked for the medication,

it should be administered. However, as *Tylox* contains the opioid codeine, a central nervous system depressant<sup>(15)</sup>, the physician should have authorized a new administration within such a short time (2h30), in order to guarantee the patient's safety.

## CONCLUSION

Participants give unanimous answers about two of the four presented scenarios (scenarios 2 and 4), in terms of whether the situation represents a medication error, whether the physician needs to be informed and whether the occurrence report must be filled out, evidencing a uniform understanding about the error.

In scenarios 1 and 3, on the other hand, the professional groups' understanding of the error suggests distinct perceptions. When comparing answers to scenarios 1 and 2, both of which present a medication error, professionals' opinions differ. And in scenario 3, the two groups are in doubt about whether the situation represents an error or not.

Nursing professionals tend to attach greater value to the circumstances leading to an error, as demonstrated in scenario 2, evidencing the lack of a uniform concept inside the team.

As the research population consisted of professionals with considerable experience, this shows that experience alone does not offer all knowledge about the theme, including manifestations of doubts about what a medication error involves. Thus, each professional uses his/her own judgment, leading to subjective definitions about the event.

In accordance with different authors<sup>(10-14)</sup>, this subject requires further studies and research. Professionals involved in the medication administration process need to be included in a broad discussion, characterizing what a medication error is and the circumstances in which it occurs. This will allow institutions to elaborate guides or manuals with definitions and conducts, standardizing their types of errors and measures to be taken when they occur.

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