Pressure ulcers prevalence indicators and patient falls incidence in teaching hospitals in the city of São Paulo*

Indicadores de prevalência de úlcera por pressão e incidência de queda de paciente em hospitais de ensino do município de São Paulo

Indicadores de prevalencia de úlcera por presión e incidencia de la caída de los pacientes en los hospitales de enseñanza en la ciudad de São Paulo

Marta Maria Melleiro[1], Daisy Maria Rizatto Tronchin[1], Cleide Maria Caetano Baptista[2], Aline Togni Braga[3], Ariane Paulino[4], Paulina Kurcgant[5]

[1] Associated Professor, University of São Paulo, School of Nursing, Department of Vocational Guidance, São Paulo, SP, Brazil.

[2] Nurse, Head of Surgical Unit Sector, University of São Paulo, University Hospital, Department of Nursing, Surgical Nursing Division, São Paulo, SP, Brazil.

[3] University of São Paulo, School of Nursing, Graduate Program in Nursing Management, São Paulo, SP, Brazil.

[4] Master's student, University of São Paulo, School of Nursing, Graduate Program in Nursing Management, São Paulo, SP, Brazil.

[5] Full Professor, University of São Paulo, School of Nursing, Department of Vocational Guidance, São Paulo, SP, Brazil.

ABSTRACT

Objective: To measure the prevalence of pressure ulcers and the incidence of patient falls in three teaching hospitals in the city of São Paulo. **Method:** Quantitative, exploratory and descriptive study. Data were collected from August 2012 to July 2013 using a form. They were analyzed according to descriptive and inferential statistics. **Results:** The annual mean of pressure ulcers overall prevalence (PU) was of 10.1%, and the incidence of patient falls was of 13.8%. **Conclusion:** Patients of Hospital 3 were the most vulnerable to pressure ulcers and falls, probably due to the aggressiveness of the disease and the complex treatments these patients were undergoing. Implementation of such indicators has enabled benchmarking and review of both assistance and management institutional protocols.

DESCRIPTORS

Pressure Ulcers; Accidents by Falls; Quality Indicators; Health Care Quality; Nursing.

Correspondence Addressed to:
Marta Maria Melleiro
Av. Dr. Enéas de Carvalho Aguiar, 419 - Cerqueira César
CEP 05403-000 - São Paulo, SP, Brasil
melleiro@usp.br

INTRODUCTION

Quality and safety in health area are inexorable attributes. The managers and workers of this area have been concerned about implementing policies and goals to meet the expectations and needs of their users.

Thus, to achieve excellence in these services, it is imperative that managers of organizations build and adopt quality policies linked to a continuous monitoring, enabling products and services with greater uniformity, reduction of non-compliance, lower costs, waste and rework[1].

Under this perspective, the construction and implementation of indicators for quality monitoring, aiming at the evaluation of health services in hospitals, have been characterized as a valuable management tool and practice that allows the pursuit of efficiency and effectiveness of organizational structures, work processes and health care outcomes[2].

The indicators are conceptualized as a quantitative measure that can be used to monitor and evaluate the quality of the health care provided to users and to services activities, providing concrete data about reality and calculating results feasibility[3-4].

The indicator is not a direct quality measure, but a signaler, a call that identifies or directs attention to specific results issues within a health organization, and it needs to be reviewed periodically[3,5].

The development of quality indicators for the evaluation of health services requires theoretical basis to the different constituent elements of institutional structures, work processes and health care results to be retrieved and analyzed.

The indicators must enable the visualization of the organizational context in its formal and informal structure, considering the tangential relationship of the different services, as well as the consequences of management decisions that these results imply[6].

The development of an indicator begins with the concept, since it will become a measure employed to describe a situation and evaluate changes or trends during a period, as well as support decision-making.

To clarify what will be measured, there are components that need to be considered, particularly: the purpose, the equation, the population or sample, the information source, the method, the person responsible for collecting data and the collection frequency[3,5].

The representation of an indicator is typically given by a numeric variable. It may be an absolute number or a relationship between two events determined by the numerator and the denominator.

As for the indicators types, literature points to different classifications; however, in health care, the most adopted indicators are: the sentinel event indicator, which measures a serious, unwanted and eventually preventable event, and the index-based, rates and coefficients, which measure an event that requires periodic evaluations, for instance: assistance and management indicators[7].

In literature review, the use of a set of assistance and management quality indicators adopted by nursing is observed: incidence and prevalence of pressure ulcers (PU), patient falls, prevalence of patient restraint, peripheral venous catheter infiltration in children, medication errors, satisfaction of the adult and pediatric patient in pain management, total nursing hours per patient day, among others[7,8].

In view of the set of indicators capable of applicability in health care organizations, this study presented the prevalence of pressure ulcers and the incidence of patient falls, based on the *American Nurses Association*[8].

Thus, the production of knowledge that supports the understanding of health care institutions with regard to quality monitoring through the use of indicators becomes necessary. In this case, these indicators are based on indexes that enable the search and implementation of actions for the transformation of professional practice and continuous improvement of care quality.

The aim of this study was to measure the indicators of PU and incidence of patient falls admitted in medical/surgical units of three teaching hospitals in the city of São Paulo.

METHOD

This is a quantitative, exploratory and descriptive study, with prospective data collection.

The survey was developed in three teaching hospitals in the city of São Paulo, named Hospital 1 (H1), Hospital 2 (H2) and Hospital (H3), being one of a secondary level of attention, one tertiary and other specialized.

The units involved, described by letters, were the medical surgical units, namely: H1, a medical unit (41 beds), and a surgical unit (42 beds); H2, two medical units (75 beds), and two surgical units (64 beds); and in the H3, four medical units (95 beds), and two surgical units (60 beds).

The project was approved by the Research Ethics Committee of the School of Nursing of the University of São Paulo (USP), Case No. 1110/2011, SISNEP CAAE No. 0132.0.196.198-11 and authorized by the involved institutions.

Case selection comprised 3,701 patients evaluated, considering that 297 presented PU, and the patient falls event occurred 148 falls from the 44,078 patients/day.

The data were collected from August 2012 to July 2013, through two forms, one for the indicator PU related variables and one for the patient falls indicator.

The first form regarding the PU event was composed by the variables: inpatient care unit, day and month of the reference collection, patient initials, age, presence or absence of PU, injury staging and site. The second form, concerning the falls, is composed by the variables: inpatient care unit, age, sex, event and total amount of patient/days.

Concerning the PU event, at first, a meeting was held in the School of Nursing of USP with the head and assisting nurses, the graduate students and the coordinators of this subproject, which explained the objectives and the method. The group of participants agreed that the third week of each month would be destined to collection. There was a

random selection of the days of the week (from Monday to Friday), being one of these chosen to measure prevalence. Thus, on the selected day, the evaluation of all patients at the bedside occurred by the nurses and students members of the research, trained to perform this activity, by filling in the form.

In relation to the patient falls event, also, the objectives and the method of the study were explained to the responsible for the institutions involved, being employed the terminology and the equation proposed by Núcleo de Apoio à Gestão Hospitalar [Support Center for Hospital Management] – NAGEH[9]. In the first week of each month occurred the survey of the number of falls and of patient/day in each institution.

The obtained data were organized in a spreadsheet and then processed by the statistical descriptive and inferential analysis. The calculation of the indicator of PU prevalence was conducted by applying the equation: number of patients with PU divided by the total amount of evaluated patients, multiplied by 100, and the incidence of falls: number of falls divided by the number of patient/day, multiplied by 1,000.

RESULTS

Concerning the characterization of patients evaluated regarding the prevalence of PU, the average age corresponded to 56.6 years (sd±16.7); for the group of patients with PU, the average was of 60.5 (sd±15.7), with statistical significance $p<0.001$. Regarding the incidence of falls, the average was of 56 years (sd±14).

Table 1 presents the prevalence of pressure ulcers indicator, in accordance with the institutions – scenarios of this study, and Table 2 presents the results according to the inpatient care units.

In the results presented in Table 1, it is noticeable that the highest percentage of annual prevalence of PU was of 10.1% in H3, followed by 7.2% in H2. H1 has obtained the lowest incidence of PU, corresponding to 6%.

Through the findings of Table 2, it was possible to observe that H3 presented the highest annual percentage of PU in Unit I – medical unit (15.7%); in H2, on the C unit – surgical unit (10.6%); and in H1, on the A unit – medical unit (6.6%).

Tables 3 and 4 demonstrate the results concerning the falls indicator.

Through the analysis of Table 3, it was observed that H3 presented higher incidence of falls (13.8/1,000 patients day), followed by H2 (9.4/1,000 patient/days) and H1 (4.6/1,000 patients/day). Indexes of falls measured in 12 months of data collection varied between 2.8 and 17.8 in H2; 1.8 and 6.7 in H1; and 5.8 and 19.5 in H3. The indexes of falls in institutions had a high oscillation among the months of the study.

Table 4 shows that the highest index of falls occurred in H2, on the C unit – surgical unit, and the lowest in H1, on the B unit.

Table 1 - Percentage distribution of PU prevalence indicator according to the hospital - São Paulo, SP, Brazil, 2014.

Institution	08/12	09/12	10/12	11/12	12/12	01/13	02/13	03/13	04/13	05/13	06/13	07/13	Year*
H1	10.5	4.8	1.4	2.5	8.8	6.5	11	4.9	5.1	2.5	4.8	9.8	**6**
H2	12.4	7.7	7.4	1.7	4.1	3.8	6.6	5.5	13.7	5.6	7.3	11	**7.2**
H3	8.3	14.4	5.6	10.4	14.3	7.3	9.8	13.1	10.7	8.5	8	10.3	**10.1**

* The "annual" mean is based in 12 days (1 for each month).

Table 2 - Percentage distribution of PU prevalence indicator by patient in hospitals in accordance with the units and the month - São Paulo, SP, Brazil, 2014.

Institution	Unit	08/12	09/12	10/12	11/12	12/12	01/13	02/13	03/13	04/13	05/13	06/13	07/13	Year*
H1	A	11.1	5	0	2.4	13.9	3	13.2	8.1	7.5	0	2.5	12.8	**6.6**
H1	B	10	4.5	2.8	2.5	3.1	9.1	9.1	2.3	2.6	4.8	6.8	7	**5.5**
H2	C	14.3	4.2	4.5	0	0	5	9.5	12.5	16.7	13.6	19	27.3	**10.6**
H2	D	20	15	5.6	0	9.1	4.2	11.5	5	18.2	9.5	7.7	8.7	**9.6**
H2	E	11.1	11.9	15	5	6.1	4.9	5.9	5.7	10	2.8	2.9	7.9	**7.6**
H2	F	6.7	0	0	0	0	0	0	0	11.5	0	3.7	3.8	**2.1**
H3	G	0	8	0	0	11.5	4.2	8	0	4.3	0	4	0	**3.6**
H3	H	0	4.8	4.5	0	4.8	4.3	0	0	5	4	0	4.8	**2.7**
H3	I	8.3	15.4	0	7.7	14.3	12	16.7	33.3	16.7	26.1	18.2	20	**15.7**
H3	J	16.7	22.7	19	28.6	4.8	4	10.5	21.1	18.2	5	9.1	9.1	**14**
H3	K	0	0	0	11.1	50	0	10	12.5	0	0	14.3	33.3	**10.3**
H3	L	17.4	27.3	9.1	6.2	22.7	15	13.6	9.5	13	10.5	9.1	9.5	**13.8**

* The "annual" mean is based in 12 days (1 for each month)

Table 3 - Distribution of the falls indicator according to the hospitals - São Paulo, SP, Brazil, 2014.

Institution	08/12	09/12	10/12	11/12	12/12	01/13	02/13	03/13	04/13	05/13	06/13	07/13	Year*
H1	6	6.3	4.2	5.4	4.4	1.8	3.6	6.7	3.4	4.2	5.3	6.1	**4.6**
H2	7.3	10.7	7.5	2.8	11.6	17.8	6.2	5	8.4	10.6	14.4	14.5	**9.4**
H3	15	19.5	8.3	17.6	10.5	8	19.3	15	11.9	5.8	19	11.8	**13.8**

*Falls per 1,000 patient days.

Table 4 - Distribution of the falls indicator according to the units of the hospitals and the month - São Paulo, SP, Brazil, 2014.

Institution	Unit	08/12	09/12	10/12	11/12	12/12	01/13	02/13	03/13	04/13	05/13	06/13	07/13	Year*
H1	A	2.6	4.6	1.7	4.4	3.4	1.8	1.0	5.0	3.4	3.4	4.5	5.5	**3.3**
H1	B	3.4	1.6	2.5	1.0	0.9	0.0	2.7	1.7		0.8	0.8	0.8	**1.4**
H2	C	2.5	3.9	7.4		4.0	19.2			3.6	3.6	8.7	3.6	**5.4**
H2	D	1.4	2.6			4.9	1.4	1.5		3.1	2.8	2.8	5.6	**2.9**
H2	E	1.6	2.9	2.3	2.8	2.9		2.0	3.4	3.7	2.5	6.0	4.1	**3.0**
H2	F	4.1	3.7	3.6		3.8		3.8	3.1		5.3	3.0	6.6	**3.8**
H3	G	2.7			1.8	3.3		1.7			3.0	3.0	1.5	**2.3**
H3	H	1.4	3.1		1.8	3.4	1.6		1.4	3.1		1.5	5.0	**2.4**
H3	I		1.3		3.6	2.0	1.2	4.3	2.6	2.5	1.3			**2.5**
H3	J	5.6	3.0	4.0	2.9		2.7	6.7	4.3	1.5		1.4		**3.5**
H3	K	4.1	4.3		7.4	3.9	4.1		2.9	1.9		4.0	4.2	**3.8**
H3	L	2.9	9.6	4.3	3.0			6.8	4.5	3.0	1.6	9.3	1.4	**4.9**

*Falls per 1,000 patient days.

The findings indicate that the falls occurred in the three surveyed institutions, being the lowest index of 1.4, and the higher 5.4/year.

DISCUSSION

In the survey, the largest portion of patients with PU was constituted by people aged over 60 years old, reinforcing the concept that the age group acts as a risk factor for the development of PU, requiring attention with the most vulnerable people.

The measure of the PU prevalence has demonstrated important implications for clinical nursing and for monitoring the quality of the health care provided. This practice has served as a tool to improve prevention policies and procedures in many countries[10].

The higher PU prevalence in the Medical Units, in two of the institutions, may be associated with a higher rate of permanence, the complexity of care, clinical conditions, among others, when compared to surgical units.

A study conducted in Spain showed an average prevalence of 3.8% in a university hospital, during the year of 2000[11].

In another study[12], the authors identified a prevalence of 10% in patients at a teaching hospital in the city of Portsmouth, Virginia, United States.

In Brazil, an investigation[12] noted the UP prevalence of 19.5% in patients admitted in the medical, surgical and intensive care units at the University Hospital of USP.

Concerning the falls event, we noted that the average of patients affected by this event was of 56 years (sd±14).

The falls of patient may be studied under different perspectives, involving the health care quality, the risk evaluation and signalling, as well as preventive and educational measures aimed at indexes reduction. However, the event persists on the plurality of competing variables, such as: physical, human and material resources, protocols for prevention and risk assessment, socio-demographic data and clinical and emotional conditions of the patients and drug therapy, among others[13].

Thus, the fall is a traumatic, multifactorial, and usually an involuntary and unexpected event, which can be recurrent in the same subject[14].

The fall of inpatients features one of the most important indicators for health research, since the main risk factors can be identified and their consequences may be displayed[15].

The falls index is part of the category of the so-called sensitive nursing indicator, therefore, focused on patient safety, considered representative of social structures and processes, with impacts on quality and safety in the workplace[16].

In the literature, falls in hospitals are events that affect patients and, generally, the incidence is from 2.3 to 7 falls for 1,000 patients day[14]. However, it is possible to observe that the rates range from 1.4 to 13 falls and, yet, there are rates from 3 to 5 falls in developed countries[15].

In a systematic review of falls prevention programs for hospitalized patients, it was also possible to perceive oscillations in the falls indexes, 1.3 to 8.9/1,000 patients/day. In this study, we observed indexes ranging from 4.6 to 13.8 similar to those found in the literature.

Another aspect to be emphasized refers to specialized care of H3, where the worst scores of both PU and falls were found, highlighting the complexity of the treatments the patients undergo in this institution.

It is worth emphasizing that these indicators contain numerous other aspects which deserve the development of new studies, such as the association between these events and personnel sizing, insults, judicial assistance, ethical dimensions and health costs.

CONCLUSION

Assistance indicators represent a measurement and event registration strategy, and may support the survey of their causes, consequences and prevention measures.

In this study it was possible to measure the PU prevalence and the falls incidence, and observe that patients of the H3 were the most vulnerable to PU and falls, probably due to the aggressiveness of the disease and the complex treatments these patients were undergoing.

We believe that this research may bring contributions aiming at the review of care and management processes of the organizations involved, considering the PU prevalence and the falls of patients incidence, providing safety for their users.

RESUMO

Objetivo: Mensurar a prevalência de úlcera por pressão e a incidência de queda de pacientes em três hospitais de ensino do Município de São Paulo. **Método:** Estudo quantitativo, exploratório-descritivo. Os dados foram coletados no período de agosto de 2012 a julho de 2013, por meio de um formulário e analisados segundo estatística descritiva e inferencial. **Resultados:** A média anual da prevalência geral de úlcera por pressão (UP) foi de 10,1% e a incidência de queda de pacientes foi de 13,8. **Conclusão:** Os pacientes do Hospital 3 foram os mais vulneráveis às úlceras por pressão e à queda, devido, provavelmente, à agressividade da doença e aos tratamentos complexos a que são submetidos. A aplicação desses indicadores vem possibilitando o *benchmarking* e a revisão dos protocolos institucionais, tanto assistenciais como gerenciais.

DESCRITORES

Úlcera por Pressão; Acidentes por Quedas; Indicadores de Qualidade; Qualidade da Assistência à Saúde; Enfermagem.

RESUMEN

Objetivo: Mensurar la prevalencia de úlcera por presión y la incidencia de caídas de pacientes en tres hospitales de enseñanza en São Paulo. **Método:** Un estudio cuantitativo, exploratorio y descriptivo. Los datos fueron recogidos a partir de agosto 2012-julio 2013, a través de un formulario y analizados mediante estadística descriptiva e inferencial. **Resultados:** el promedio anual de la prevalencia general de úlcera por presión (UP) fue 10,1% y la incidencia de caídas de los pacientes fue de 13,8. **Conclusión:** Los pacientes del Hospital 3 fueron más vulnerables a las úlceras por presión y caída, probablemente debido a la agresividad de la enfermedad y los tratamientos complejos a que son sometidos. La aplicación de estos indicadores ha permitido el *benchmarking* y la revisión de los protocolos institucionales, tanto de asistencia y de gestión.

DESCRIPTORES

Úlcera por Presión; Accidentes por Caídas; Indicadores de Calidad; Calidad de la Atención de Salud; Enfermería.

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