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PERFORMANCE INDICATORS ADOPTED BY NURSING SERVICES IN TEACHING HOSPITALS

INDICADORES DE DESEMPENHO ADOTADOS EM SERVIÇOS DE ENFERMAGEM DE HOSPITAIS DE ENSINO

INDICADORES DE DESEMPEÑO ADOPTADOS EN SERVICIOS DE ENFERMERÍA DE HOSPITALES DE ENSEÑANZA

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ABSTRACT

Objective: to identify indicators adopted by nursing services in teaching hospitals. **Methods:** A cross-sectional, quantitative, non-experimental and descriptive study was conducted in 11 teaching hospitals in the state of São Paulo, Brazil. Data were collected using a questionnaire given to those responsible for the nursing services. The data were analyzed using the Epi Info software, version 3.5.2. The study was approved by a research ethics committee, protocol no. 1279/2011. **Results:** 90% of the hospitals adopted indicators and disclosed and discussed the results with the nursing staff. The most commonly adopted indicators were: incidence of falls, pressure ulcers, unplanned extubation, phlebitis and the occurrence of adverse events. The least adopted were those related to the management of human resources. Of the institutions researched, 45.5% participated in indicator databases. **Conclusion:** most services use quality indicators, however, it is necessary to encourage comparison among hospitals and invest in global indicators that indicate final care outcomes. **Descriptors:** Quality Indicators; Health Care; Indicators of Health Services; Quality of Health Care.

RESUMO

Objetivo: identificar indicadores adotados em Serviços de Enfermagem de hospitais de ensino. **Método:** estudo transversal, não experimental, descritivo, de abordagem quantitativa, realizado em 11 hospitais de ensino do estado de São Paulo por meio de um questionário respondido pelos responsáveis pelo Serviço de Enfermagem. Os dados foram analisados utilizando-se o software Epi Info, versão 3.5.2. O projeto de pesquisa foi aprovado pelo Comitê de Ética em Pesquisa, protocolo 1279/2011. **Resultados:** verificou-se que 90% dos hospitais adotam indicadores, divulgam e discutem resultados com a equipe de enfermagem. Os mais adotados são: incidência de quedas, úlceras por pressão, extubação acidental, flebites e ocorrência de eventos adversos. Os menos adotados são aqueles relacionados ao gerenciamento de recursos humanos. A participação em banco de dados de indicadores ocorre em 45,5% das instituições. **Conclusão:** a maioria dos serviços adota indicadores, havendo necessidade de incentivar a comparação entre hospitais e investir em indicadores globais, que apontem para resultados finais da assistência. **Descritores:** Indicadores de Qualidade em Assistência à Saúde; Indicadores de Serviços; Qualidade da Assistência à Saúde.

RESUMEN

Objetivo: identificar indicadores adoptados en Servicios de Enfermería de hospitales de enseñanza. **Método:** estudio transversal, no experimental, descriptivo, abordaje cuantitativo, realizado en 11 hospitales de enseñanza del estado de São Paulo mediante cuestionario respondido por los responsables del Servicio de Enfermería. Datos analizados utilizándose el software Epi Info v3.5.2. El proyecto de investigación fue aprobado por el Comité de Ética, protocolo 1279/2011. **Resultados:** Se verificó que 90% de hospitales adopta indicadores, comparte y discute resultados con equipo de enfermería. Los más adoptados fueron: incidencia de caídas, úlceras por presión, extubación accidental, flebitis y ocurrencia de eventos adversos. Los menos adoptados son los relativos a gerenciamento de recursos humanos. Los indicadores son agregados a bancos de datos en 45,5% de las instituciones. **Conclusiones:** La mayoría de los servicios adopta indicadores, existe necesidad de incentivar la comparación entre hospitales y determinar indicadores globales que determinen resultados finales de atención. **Descriptores:** Indicadores de Calidad de la Atención de Salud; Indicadores de Servicios; Calidad de la Atención de Salud.

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INTRODUCTION

Concern with service excellence has proven to be a challenge for health care professionals. In this sense, there is a movement among health organizations to reconcile quality and costs, patient satisfaction and operational efficiency. To this end, institutions implement actions to monitor quality continuously while taking into account the cost-benefit relationship.¹

According to the Pan American Health Organization (PAHO), health care quality is defined as the manifested application of equity, effectiveness, quality, efficiency and patient satisfaction, all of which are interdependent factors.¹ In order to achieve this goal, standards and protocols must be created and constantly developed and improved upon.

The health care sector was one of the last to incorporate the philosophy of quality, even in developed countries.² Health care quality consists of obtaining the greatest benefits with the lowest risks for its users.³ The movement for quality in industrial production of the 1950s was slowly absorbed by the health care field in the following decade and in the beginning of the 1970s.⁴ In this context, the Brazilian Manual of Accreditation was created by the National Accreditation Organization (ONA, as per its acronym in Portuguese) as a tool for measuring the quality of care in Brazilian hospitals.⁵

The quality of health care services can only improve with the implementation of systematic assessment of care. This assessment must be based upon three pillars: structure, process and results. **Structure** consists of the means through which care is processed. **Process** refers to the activities carried out by the client and by the professionals during diagnostic and treatment processes. The **result** should reflect increased knowledge about the patient, changes in the patient's behavior and an improvement in his/her level of satisfaction.^{3,6}

The assessment process requires parameters and indicators that are attainable and appropriate for each reality. Indicators are measurements used to describe a present situation, to evaluate changes or tendencies during a certain period of time and to evaluate health care actions that are executed regarding their quantity and quality.⁷ It has been observed that more health care institutions have been adopting assessment methods based on indicators in order to make decisions for improving processes and outcomes. The use of indicators

by the service management generates an institutional culture that values such information.⁸

Using indicators to assess nursing care is essential for health care services. This process allows for the evaluation of patient care outcome and helps to identify which interventions are necessary for improving performance, productivity and service quality.⁹

It is observed that quality of care is generally assessed through the point of view of structure and process, for this makes it possible to obtain more objective and concrete data. Traditionally, the most commonly studied and utilized indicators for evaluating care in the nursing field are those related to physical care and care processes.^{8,10}

It is of utmost importance to understand how nursing services manage their outcomes, and one way of doing this is by identifying the indicators adopted by such services. We also emphasize the scarcity of studies regarding the assessment of care outcomes or outcome indicators for evaluating nursing services that discuss the criteria established and the gaps in such indicators. This information should be analyzed so that it can contribute towards more precise assessment models of nursing care quality.¹¹

These reflections lead to the following question: Have nursing services been assessing their outcomes through indicators? And based on this question, the objective of the present study is:

- To identify performance indicators adopted by nursing services in teaching hospitals.

METHODS

A cross-sectional non-experimental study, using a quantitative approach.¹²

There are 37 teaching hospitals in the state of São Paulo, Brazil, that are certified by the Brazilian Health Ministry and the Ministry of Education and Culture. Of these, seven belong to state universities, one to a federal university, and 15 to medical schools. Furthermore, five have signed agreements with state universities, one with a federal university and nine are specialized hospitals belonging to or having signed agreements with colleges.¹³

After sending the invitations to those responsible for the nursing services in all the state's teaching hospitals, data were collected from September 2011 to May 2012 using a questionnaire that, prior to our study, was tested and approved as for face and

content validity by a three-judge panel. The instrument was sent to the 11 teaching hospitals that agreed to participate in the study, and consisted of 11 open- and close-ended questions, which alternated between dichotomous and multiple choice, related to the institution’s characteristics, managerial reports, quality certification programs, the use of indicators, discussion and disclosure of these indicators to other institutions, as well as within the institution itself and notification of adverse events. All the teaching hospitals

in the state that agreed to participate were included in the study. The questionnaires regarding the adoption of indicators were given to the nurse responsible for the Nursing Services of each hospital, or to the nurse assigned by him/her, after signing the free and informed consent form.

Below, the classification of the researched hospitals according to their specialties and legal regimes (table 1) is presented, as well as according to the number of beds (table 2) available in each one.

Table 1. Classification according to specialty and legal regime of teaching hospitals in the state of São Paulo, Brazil, 2012.

Type of hospital	No. of hospitals	%
General private	2	18.20
General public	6	54.50
Specialized private	1	9.10
Specialized public	1	9.10
Specialized private philanthropic	1	9.10
Total	11	100

Table 2. Classification of teaching hospitals of the state of São Paulo, Brazil, according to the number of beds, 2012.

Classification according to number of beds	No. of hospitals	%
Medium-sized	3	27.30
Large	6	54.20
Special size	2	18.20
Total	11	100

For analysis, the data were charted using a Microsoft Excel 2010 spreadsheet, and each variable was appropriately coded, through double entry. Results were then exported to the Epi Info program, version 3.5.2 for statistical analysis.

The study was approved by the Research Ethics Committee of the University of São Paulo at Ribeirão Preto College of Nursing, under protocol no. 1279/2011.

RESULTS AND DISCUSSION

When considering participation in quality certification programs, 45.5% of the researched institutions take part in more than one program. A total of 27.30% of institutions participate in the Brazilian Hospital Commitment to Quality program (CQH), of which one is a private general hospital and two, general public hospitals. Furthermore, 27.30% participate in the National Program for Hospital Accreditation, of which one is private and specialized, and two others, general public institutions. With respect to the national Quality Management Program, 27.30% of the institutions take part in it, of which one is specialized and private, one is general and public and the other, specialized and public. Our results indicate that 9.10%, or one general public hospital, participate in the ISO 9000. The last program is Accreditation Canada,

with the participation of one general public hospital, or 9.10% of the researched institutions.

It is important to emphasize that despite the rise in the number of hospitals which seek out certification for their services, the number of certified institutions in Brazil is still low.¹⁴ Data from the National Accreditation Organization and the Brazilian Accreditation System indicate that, currently, more than 300 organizations possess nationally recognized certification, totaling 25.700 beds, or 10% of the total clinical and surgical hospital beds in Brazil. The data also indicate that there was a 12.2% growth in certified organizations in 2011.¹⁵ The development of quality guarantee programs is necessary in terms of efficiency and an obligation from the ethical point of view. However, it is still not comprehensive enough when taking into consideration the universe of approximately 7,000 hospitals in Brazil.

Ensuring quality requires the participation of the entire staff, overcoming hierarchical barriers to achieve the goal of improving procedures and processes that must be executed with safety. This condition will lead to outcomes easily detectable through indicators, which will act as control mechanisms for assessing improvements.

Analysis of adverse event notifications occurs in 81.70% of the hospitals in our study. In 40.90% of the total hospitals, a form is filled out manually. In 40.90% of them, notification is done electronically. In 9.10%, both methods are used, in addition to writing reports. These hospitals notify procedural errors, non-conformance related to drug administration and any drug-related event, non-conformance related to work accidents, non-conformance related to displacement of central venous catheter, problems with devices, events regarding equipment, related to hospital materials, to blood components, vaccinations, patient falls, skin lesions, pressure ulcers, loss or misplacement of nasogastric tube, phlebitis, unplanned extubation and displacement of capillary tubes during hemodialysis.

These results corroborate those of a study conducted during the period between 2004 and 2006 in a tertiary teaching hospital in the south of the state of São Paulo, which investigated the use of the Adverse Event Notification Bulletin (BNEA, as per its acronym in Portuguese). This study indicates that the most frequent events are related to medication, patient falls, catheters, probes and drains and to skin integrity, and that such events are related to quality indicators.¹⁶ The practice of notifying adverse events is intimately related to patient safety and the analysis of these notifications has only recently been studied by researchers, health professionals and health managers over the world. In addition to alerting to the occurrence of care errors, these notifications help to define priorities and intervention modes by creating policies for care safety.¹⁷

Regarding the use of databanks for sharing indicators with other hospitals, 45.50% of the researched hospitals share information, being that 27.30% of these participate in the Hospital Commitment to Quality Program (CQH, as per its acronym in Portuguese) of the São Paulo Association of Medicine and the Regional Board of Medicine. This association was the first to take the initiative of structuring a nursing indicator database in Brazil, carried out by the CQH Hospital Management Support (NAGEH, as per its acronym in Portuguese),¹⁸ which developed performance indicators for nursing care in order to analyze and compare the performance of associated hospitals. These

include: incidence of falls, incidence of pressure ulcers, incidence of displacement of nasogastric tube, incidence of phlebitis, incidence of non-conformance related to drug administration, incidence of central catheter obstruction, hours of nurse training and the distribution of nurses and technicians per number of hospital beds.

Only 9.1% of the studied hospitals participate in the Teaching Hospital Assessment System, which is a system coordinated by the Teaching Hospital Advisory Board of the Health Department of São Paulo. It was designed and developed by the Health Planning Coordination of the Health Department of São Paulo with the objective of electronically collecting data from monthly and annual reports written by teaching hospitals contracted by the state of São Paulo.¹⁹

In terms of participation in care safety management programs, there is a network called Sentinela in Brazil, which is a project created by the sector of surveillance services. The aim of this network is to build a nationwide network of adverse event notification and technical complaints about health products.²⁰ Of the hospitals included in our study, 9.10% are part of this program.

A study was conducted in 134 hospitals in California, USA, with the intention of explaining the reproducible methodology used to project and analyze a large reliable databank in use, as well as the quality of the nursing staff and patient care outcomes in acute care hospitals. The study concluded that the use of databanks is a successful and effective experience for analyzing, monitoring, and sharing the results of indicators per hospital nursing service, helping to improve care processes and outcomes.²¹

It was observed that 90.90% of the nursing services of the studied hospitals adopted performance indicators. This rate demonstrates a concern for evaluating the quality of the care provided. Once adopted, indicators allow for monitoring the service and improving the quality of the care provided.⁹ Table 4 presents the performance indicators adopted by the hospitals in this study.

Table 4. Performance indicators adopted by nursing services in teaching hospitals in the state of São Paulo, Brazil, 2012.

Performance indicators	Adopted	Not adopted	Total
	%	%	%
Incidence of falls	90.90	09.10	100
Incidence of pressure ulcers	81.80	18.20	100
Incidence of unplanned extubation	72.70	27.30	100
Displaced nasogastric tube	63.60	36.40	100
Rate of phlebitis	54.50	45.50	100
Rate of nursing absenteeism	54.50	45.50	100
Rate of nursing turnover	54.50	45.50	100
Rate of nursing staff work accidents	54.50	45.50	100
Hours of nursing professional training	54.50	45.50	100
Incidence of non-conformance regarding drug administration	45.50	54.50	100
Client satisfaction with nursing services	45.50	54.50	100
Nursing technicians and aides X beds distribution	18.20	81.80	100
Nurses X beds distribution	18.20	81.80	100
Non-conformance of nursing records	09.100	90.90	100
Incidence of central venous catheter obstruction		100	100

The selection of indicators adopted by the hospitals in this study indicates that these institutions use the more traditional indicators to assess their care processes.

A systematic review demonstrated that of all the indicators found in the literature, 74% were related to the care process, 16.6% to structure and 9.2% to outcome. It concluded that the main indicators adopted were those related to nursing care processes. Furthermore, it concluded that the most commonly used indicators for hospital nursing care services in the literature were the rate of falls, drug-related errors and incidence/prevalence of pressure ulcers.⁹

Another study demonstrated that nursing care quality analysis has generally occurred through the perspective of structure and process, for the analysis of these factors result in more objective and concrete data. In the nursing field, the most studied indicators were those related to physical care.¹⁰

It was found that 54.50% of the evaluated hospitals adopted the incidence of phlebitis as an indicator, and that no hospital used indicators related to catheter obstruction. However, 9.10% adopt central venous access-related complications as indicators. In general, phlebitis is associated to the use of peripheral intravenous catheters. When we study the incidence of phlebitis, it is possible to identify associations between this complication and drug therapy for hospitalized patients.²² The need for using new quality indicators, among them the identification of peripheral venous access and also of intravenous infusion equipment, given the importance of the issue, for intravenous infusion therapy is predominant in the daily work of nurses, and carries legal implications.²³

A total of 45.50% of the institutions use the incidence of non-conformances related to

drug administration as an indicator. Such is defined as any avoidable event which in fact, or potentially, leads to the improper use of medication.²⁴ Still regarding medication, 9.10% of hospitals use the spillage of chemotherapy drugs and chemotherapy extravasation as indicators. A study conducted in four Brazilian hospitals detected that one of the greatest problems when preparing and administering drugs relates to their administration, and yet another to proper patient identification.²³

Managerial indicators related to the distribution of aides, technicians and nurses per number of hospital beds were used in 18.20% of hospitals. Those related to turnover, absenteeism, training and work accidents were used in 54.50%. Both indicators demonstrate the need for institutions to advance in their care and management processes.

Identifying work accidents allows for the improvement of work conditions, especially when considering the high accident rate to which nursing professionals are exposed.²⁵

With respect to absenteeism, institutions must implement decisions and nursing actions to solve this specific problem, depending on how it presents itself or is understood in the reality of each work place. This is a management issue that ends up interfering with care and is difficult to solve due to its complexity, including factors such as work overload and stress.²⁶

Another study on the opinion of nurses about the use of indicators revealed the emphasis given to patient satisfaction among nursing staff.²⁷ Nonetheless, the present study demonstrates that this indicator is only found in 45.50% of the researched hospitals.

Non-conformance in nursing records is measured or evaluated by 9.10% of the

institutions. Such record requires a multiprofessional team, with the significant participation of the nursing staff in this step of the care process. Nursing records are used in communication and legal processes and therefore, such a low level of adherence is worrisome from the legal and care point of view. A study carried out in 2009 assessed the quality of nursing records in the charts of patients cared for in a unit of a teaching hospital in the municipality of São Paulo, via an auditing process. The authors concluded that the records made in patient's charts provide the institution, the patient and the professional with ethical and legal support. When such records are scarce or inadequate, patient care is compromised, as well as the institution and nursing team, for this infringes on the commitment to patient safety and hinders the evaluation of care outcomes. One way to help reduce this problem is by standardizing records.²⁸

In the search for quality, errors should be considered within a systemic framework, despite patient safety aspects.²⁹

It was found that 81.80% of the hospitals disclose their indicators to the nursing team, being that 9.10% of them do not use indicators, and another 9.10% did not answer this item. Means of disclosure are varied and include the use of spreadsheets, charts, Internet, meetings, reports and bulletin boards in specific units.

CONCLUSION

The present study reached all of its intended goals, inasmuch that it revealed that there is a culture of adopting, analyzing, disclosing and discussing performance indicators among nursing services of most of the researched teaching hospitals. Management indicators related to human resources and user satisfaction are less prevalent, and those related to classic care processes are the most prevalent. It is necessary to emphasize the importance of adopting human resource management and user satisfaction parameters in order to produce higher levels of quality, for no indicator excludes the other. In order to calculate these indicators, the trend has been to adopt the formulas recommended by the Hospital Commitment to Quality program.

When comparing the indicators found with that of other health services, a low level of adherence is still observed. It was also observed the high percentage of hospitals that work with the notification of adverse events. Although they are primarily about the nursing staff's care processes, they increase the

possibility of assessing and improving care processes in order to guarantee patient safety.

One limitation of our study is that it does not measure how these indicators are used by the services. It is important to highlight the need for future studies to analyze how they have been used by nursing managers in order to promote change.

It is necessary to encourage the adoption of performance indicators and the sharing and exchange of indicators among hospitals. Once again, great part of the indicators used by the researched hospitals relate to specific nursing care processes. Thus, it is necessary for other more global indicators to be adopted, involving other fields of knowledge, which can indicate the final outcomes of the care provided.

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