

QUALITY ANALYSIS OF THE RAPID RESPONSE TEAM IN A UNIVERSITY HOSPITAL: NURSES' OPINIONS

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ABSTRACT

This study aims to analyze the quality of care provided by a rapid response team at a University Hospital in Londrina, Paraná, Brazil, regarding the dimensions structure, process, and outcome according to the opinion of nurses who experience this work. This is a quantitative research with an exploratory and descriptive approach. Data was obtained in April and May 2012, by means of a questionnaire answered by 22 nurses from medical-surgical inpatient units. Data analysis took place by using positivity percentage rates in relation to the dimensions under study, and the rate $\geq 70\%$ was standardized for this research. The positivity rates obtained in the dimensions were 45.96% (structure), 56.54% (process), and 74.99% (outcome). It is concluded that in the overall mean score of dimensions none of them reached the recommended rate. We found out the vulnerable points that deserve being measured through the evaluated dimensions and those that reinforce the attribute of quality management in the institution according to nurses' opinions.

Keywords: Quality Management. Hospital Rapid Response Team. Nursing.

INTRODUCTION

We constantly aim to provide qualified care for the hospitalized patient and, especially, for the patient regarded as critically ill. Success in providing care for the critically ill patient is related to the quick assessment of changes taking place in her/his clinical condition and to the team's commitment to therapeutic practices. From this perspective, in order to obtain a diagnosis of service quality, we must seek knowing the reality, potentiality, drawback, and outcome of the service offered to the population⁽¹⁾.

Within the hospital environment, permeated with specificities and complexities, it is worth deploying quality management, in order to ensure adequate care, in the shortest time possible, avoiding or minimizing sequelae and other kinds of damage to users' health⁽²⁾.

The authors of this study observe during their working practices, at the hospital which constitutes the setting of this research, the increasing age of the population served, the admission and stay of the critically ill patient in the adult emergency and inpatient units, the insufficient number of beds in the intensive care

unit (ICU). These are some of the causes found for the increased severity of patients in inpatient units, with high risk of safety incidents during care.

To minimize risks, a strategy adopted in Australia, in 1994, was creating rapid response teams (RRTs) in hospitals⁽³⁾. The work rationale of this service is based on a multidisciplinary approach, with early identification and intervention upon signs/symptoms of the patient at risk of safety incidents in the wards during her/his hospitalization. This system is a "bedside" intensive therapy, so that the patient can be provided with care outside the ICU environment⁽³⁾.

A study conducted in a general hospital with 447 beds and focused on treating high complexity diseases in São Paulo found that, in the period prior to the deployment of the RRTs, there were 3.54 cardiac arrest events/1,000 hospital discharges and 16.27 deaths/1,000 hospital discharges. After the service deployment, a decreased number of cardiac arrests and a decreased hospital mortality rate were observed, respectively, 1.69 cardiac arrest events/1,000 hospital discharges ($p < 0.001$) and 14.34 deaths/1,000 hospital discharges ($p = 0.029$)⁽⁴⁾.

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The main feature of the RRTs at the University Hospital of Londrina, Paraná, Brazil, is providing care for the critically ill patient in the adult inpatient unit. The team consists of an intensive care physician and a physiotherapist who deal with yellow code (clinical instability) or blue code (care for cardiac arrest) calls. The unit's nurse joins the other professionals to deal with the institution's codes.

The onset of service provision in the hospital institution, which has 313 beds, took place in March 2009 and, due to restricted human resources, it relies on an active team for 12 hours/day (7:00 a.m. to 7:00 p.m.), all weekdays. At nighttime, the code calls are addressed by the on-duty team at the hospital's urgency/emergency sector⁽⁵⁾.

We also emphasize that the RRTs make daily visits for the critically ill patient who is waiting for an ICU bed and the patient who was discharged from the ICU and stays in the ward for up to 72 hours. Due to interventions made by the service, such as defibrillation and/or cardioversion during cardiac arrest, medication prescription, and oxygen therapy, there was a need to assign the physician to team coordination in the institution under study⁽⁵⁾.

Thus, in the quest for improved quality management, it becomes indispensable obtaining data regarding the opinions of nurses involved in the provision of this service, according to the conceptual model for assessing the quality of health services proposed by Donabedian⁽⁶⁾, consisting of the dimensions structure, process, and outcome, which ground the quality indicators proposed.

Considering the scarcity of literature on the theme quality management of a RRT, especially with nurses, due to the fact that most researches highlight epidemiological data, this study aims to analyze the quality of care provided by the RRT according to nurses' opinion at the University Hospital of Londrina.

METHODOLOGY

This exploratory descriptive study, with a quantitative approach, analyzed the opinions of nurses involved in the care provided for critically ill patients by a RRT in the University

Hospital of Londrina, in the adult medical-surgical inpatient units.

Out of the 32 nurses who are included in the staff of the inpatient units under study, 24 were invited to participate in the research, because they work at the same period in which the RRT was visited. The study relied on the participation of 22 nurses (91.67%), because 2 nurses were enjoying their maternity leave.

The criterion for participating in the research was having a length of professional experience over three months in the RRT of this institution. The authors infer that nurses' time working in the RRT contributes to the research because of the experiences and interactions between professionals in the institution.

The questionnaire for data collection was validated by means of the Delphi technique, with over 80% of agreement among 10 nurses experienced in urgency/emergency care and adult ICU and 5 professors in the health field.

The questionnaire consisted of 2 parts: the first for characterizing the professionals and the second with 37 propositions, divided into 3 dimensions, having 9 questions in the dimension Structure, 20 in Process, and 8 in Outcome, according to Donabedian's conceptual model⁽⁶⁾.

The dimension Structure is related to the physical, human, and material resource and to equipment, standard, and routine; Process is related to the way how care has been provided for the patient, according to the technical-scientific standard established and scientifically accepted; and Outcome, in turn, corresponds to the consequences of actions taken in the health services or by the professionals involved⁽⁶⁾.

The data collection conducted by the authors took place in April and May 2012. All questionnaires were handed over within the stipulated deadline of 10 working days. The collected data were entered and stored in the database, in *Microsoft Excel* format, version 2007.

For analysis, we adopted the positivity rate (PR)⁽⁷⁾, which consists in identifying, for each item of the questionnaire, the type of response observed (affirmative, negative, or not applicable). To determine the simple percentages, the number of "yes" and "no" for each dimension was separately added.

The subtotal “not applicable” was eliminated for further calculations and analyses in a situation where the patient was not exposed to the condition observed in each dimension evaluated. The sum of subtotals “yes” plus “no” became the total for calculations, i.e. it represented 100% of the proposition in each dimension. Then, by means of cross-multiplication, we obtained the positivity percentage.

In this study, whenever the average PR was $\geq 70\%$ ^(7,8), the quality of care was regarded as satisfactory. When below this value, it would consist in a very poor quality (PR < 70%), and the optimal quality would be PR equal to 100%.

In this article, the number of propositions is described according to the classification adopted in the previous paragraph and the respective average values for the dimensions Structure, Process, and Outcome. The 2 propositions that obtained the PRs are presented and discussed and also those with the 2 utterances with lowest scores, as indicated in tables 1, 2, and 3.

The study was approved by the Research Ethics Committee of the State University of Londrina (UEL), under the CAAE 0184.0.268.268-11 and the Opinion 213/2011.

Table 1 - Distribution of positivity rates (%) according to the opinion of nurses from inpatient units, regarding the quality of care provided by the rapid response team in the dimension Structure from Donabedian's model. Londrina, 2013.

Propositions from the dimension Structure	PR* (%)
The nurse is primarily responsible for triggering the RRT, since she/he is 24 hours besides the patient.	86.36
There is a need to assign an exclusive nurse in the institution to work along with the RRT.	81.82
Permanent materials (non-invasive blood pressure monitoring device, cardioscope, pulse oximeter, defibrillator, mechanical ventilator, secretion aspirators, glucometer, infusion pump, gas network, among others) are sufficient and available when requested by the RRT.	9.10
There is in the institution a location where the RRT can hold technical meetings and/or conduct research.	9.10

*PR: Positivity rate.

Regarding the dimension Structure (Table 1), 86.36% of respondents said that the unit's nurse is primarily responsible for triggering the RRT. Nurses working in hospitals are considered as the most powerful and numerous allies of the rapid response service, since they are in direct contact to the patient and trigger more frequently the team in face of the early identification of clinical changes. Because of these actions, the RRT arrival provides an intensive care

RESULTS AND DISCUSSION

Out of the universe of participants, 16 (72.7%) were women and 6 (27.3%) were men. The average age was 41.2 years, with a standard deviation of 8.11 and coefficient of variation of 19.7%. As for nurses' professional practice, 63.6% worked in the institution for over 5 years, 54.6% have obtained a certificate of specialist, and 45.4% have obtained a master's degree.

There were a considerable proportion of female nurses, i.e. 19 out of the 22 participants, something which is expected because nursing is a profession predominantly practiced by women.

In a similar study conducted in Brazil, to characterize the profile of nurses from a high-complexity public university hospital in the city of Rio de Janeiro, revealed that 88% of the population consisted of female nurses and the predominant age group was from 44 to 48 years⁽⁹⁾.

The dimension Structure accounted for 9 propositions, out of which 4 obtained a satisfactory quality concept (PR ≥ 70) and 5 were classified as having a very poor quality. The average PR value in the dimension Structure was 45.96%.

environment to the bed of a patient who is in the ward⁽¹⁰⁾.

According to 81.82% of respondents, the unit emergency car had the materials and equipment needed to provide the patient with care. The emergency car operation is closely related to the quality of care, since it is used in situations involving high risk of mortality and it may impact on survival rates for cardiac arrest in the institution. Thus, assessing the quality of the

emergency car takes great importance in relation to health care⁽¹¹⁾.

Only 9.10% of nurses were satisfied as for the permanent materials available and sufficient for providing the patient with care, something which becomes critical for the RRT.

The scarcity of materials emerges as a major problem in the health team's work and it implies the need to seek for it, i.e. losing time that could be spent in providing the critical patient with care, something which arouses feelings of irritation and fatigue among workers. This becomes more serious in cases of urgency, because there must be no interruption in the provision of care⁽²⁾.

The authors of this study corroborate that monitoring devices and equipment are of utmost importance to follow up and register rates in a faster and more dynamic way for the patient who becomes critical in the ward⁽¹²⁾, but they do not meet the dire need for immediate transfer of patient to the ICU, where she/he will have the whole technological apparatus.

Only 9.10% indicated that there was in the institution a location where the RRT could hold technical meetings and/or conduct research. We may infer that many nurses do not know about the existence of a room, in the adult ICU, to support the service. Such an environment could provide regular discussions on the management of service quality among clinical and managerial professionals, as well as incite research, by analyzing the service form and the computerized database, due to the lack of knowledge about the RRT in Brazil.

Out of the 20 propositions, 8 obtained satisfactory quality PRs and 12 reached values attributed to very poor quality. Concerning the average value for the dimension Process, 56.54% were registered.

According to Donabedian⁽⁶⁾, the Process might be the most direct way to assess the management of quality of care, as it refers to the constituent elements of the practices themselves, related to everything that mediates the relationship professional/user.

Table 2 – Distribution of positivity rates (%) according to the opinion of nurses from inpatient units, regarding the quality of care provided by the rapid response team in the dimension Process from Donabedian's model. Londrina, 2013.

Propositions from the dimension Process	PR* (%)
It is crucial to follow up critically ill patients in the wards by the RRT, due to the difficulty of immediate transfer to the ICU.	95.45
The RRT makes visits in the morning and afternoon shifts to patients who are waiting for a bed in the adult ICU.	90.01
The RRT develops educational actions along with the nursing team in the units where it works.	4.55
The RRT develops educational activities, training new RRT members (physicians and physiotherapists) to treat critically ill patients in the units.	4.55

*PR: Positivity rate.

Regarding the evaluation of Process, 95.45% of respondents ensure the importance that RRT follow up the patient in the ward who is waiting for vacancy in the ICU. It is inferred that Brazil has few ICU beds available to meet all the demand and these beds are considered as "rare beds".

A research conducted in an ICU of a university hospital in southern Brazil showed that out of the 401 patients under study, 125 (31.2%) were immediately admitted to the ICU and 276 (68.8%) had delays in admission to this unit. Patients admitted with delays in the unit had a higher mortality when compared to those

immediately admitted to the ICU (50% versus 37.6%; $p < 0.001$)⁽¹³⁾.

Another item that reached a PR of 90.01% was the differential strategy of the service to make daily visits in the morning and afternoon shifts in the wards to evaluate the patient who was waiting for transfer to the ICU.

It is stressed that the daily evaluation in the unit of the patient who is waiting for vacancy in the ICU of the institution becomes the differential feature of the activity when compared to other rapid response services in Brazil, due to the shortage of ICU beds in public hospitals in the country⁽¹⁴⁾.

The health care work practiced in the provision of care for the critical patient requires even more organization and action at a multiprofessional level, characterized by activities performed by a group of professionals from different backgrounds who need to share the same objectives so that the care provided meets the actual needs of these patients⁽¹⁵⁾. When making daily visits to the patient in the ward, the RRT prevents worsening and optimizes chances of recovery of the patient who has a high rate of morbidity and mortality⁽¹⁶⁾.

The utterances regarding the educational action taken by professionals from the RRT with the nursing team in the units and for newly admitted members accounted for concordance rates of 4.55% each. Little knowledge on the part of nurses is revealed, something which may be associated with the low dissemination of the training outcome by this institution.

Given the findings in the previous paragraph, we highlight the fact that the nursing team

represents the most significant percentage of staff in Brazilian hospitals and it needs continued health education.

Studies carried out in public hospitals in the city of São Paulo evaluated the predominance of educational activities aimed at executing techniques and recovering health, especially with professionals who have Higher Education. These studies highlighted the educational practice that reiterates the clinical model of individual care and the fragmentation of activities, something far away from the public health policies ruled by comprehensiveness and interprofessional teamwork⁽¹⁷⁾.

The dimension Outcome was that showing the best average PR value when compared to the previous findings (Structure and Process), with 74.99%. Attention is drawn by the fact that out of the 8 propositions shown, 6 obtained rates classified as satisfactory quality and 2 utterances had a very poor quality.

Table 3 – Distribution of positivity rates (%) according to the opinion of nurses from inpatient units, regarding the quality of care provided by the rapid response team in the dimension Outcome from Donabedian's model. Londrina, 2013.

Propositions from the dimension Outcome	PR* (%)
It is crucial to deploy the RRT service at nighttime in the institution.	100
The RRT work reduces the risk of clinical deterioration of patients in the unit.	95.45
The RRT and the nursing team of the unit have a good interpersonal relationship during the provision of patient care.	63.64
The institution or the coordinator of the RRT provides, on a monthly basis, the outcomes of care in the units.	0

*PR: Positivity rate.

We observe in the dimension Outcome that all respondents said there is a need for deploying RRT at nighttime, providing 24-hour care. The number of RRTs has significantly grown since its introduction in Australia. The adoption of this service fills a gap in the current clinical practice regarding the hospitalized patient's safety⁽¹⁸⁾.

According to 95.45% of nurses, the RRT reduces the risk of clinical instability of the patient in the inpatient unit, something which decreases the chance of becoming a critical patient outside the ICU. A multicenter study showed that after the deployment of RRT, there was a decline in the rates of cardiac arrest and

clinical complications in the wards and decreased rate of readmission to the ICU⁽¹⁹⁾.

According to 64.63% of respondents, the RRT and the nursing team of the unit have a good interpersonal relationship during the provision of patient care. In face of working in emergency situations, it is required that the professionals develop technical and cognitive skills in order to be able to deal with the unexpected, having agility and safety in their daily work⁽²⁾.

Another factor that attributed a very poor quality to this proposition may be related to insufficient human resources, which triggers an increased work pace and the consequent

overload of professionals, who need to execute more tasks in less time. Such a situation is a fact that generates stress among workers and it reflects, in a harmful way, on the quality of care⁽²⁾.

It is noteworthy that all respondents have no access to care indicators derived from the RRT in the unit. Donabedian⁽⁶⁾, by addressing quality management, reinforces that the use of care indicators leads quality to stop being an abstract and subjective aspiration, because it allows the service to be evaluated and, above all, improved.

Although the service operation does not occur for 24 hours, there were positive records on the part of nurses who execute their care activities in the unit along with the RRT. However, it is emphasized that out of the 37 utterances included in the questionnaire, 26 obtained the classification very poor quality.

FINAL REMARKS

The use of Donabedian's triad allowed us to analyze, according to the opinions of nurses from the adult inpatient unit, the quality management of a rapid response service

deployed since 2009 in a public university hospital.

The findings allow the institution's managers to think through the implementation of actions that contribute to improve the quality of care, such as acquisition of permanent materials, provision of a location for technical and/or research meetings, continued education actions during critical patient care, as well as provision of statistical data, by means of indicators of the units served by the service.

In order to reach quality management with satisfactory/optimal indicators, health services must adopt the use of various strategies and tools, but there is a need, above all, to rely on the participation and commitment of the professionals who are directly involved in the work dynamics, translating the group's potential.

It is worth mentioning the limitation of this study, because this is the presentation of findings from only one service, with characteristics of a hospital institution for public education, something which may hinder comparisons to other institutions with different physical and organizational characteristics.

ANÁLISE DA QUALIDADE DO TIME DE RESPOSTA RÁPIDA EM HOSPITAL UNIVERSITÁRIO: OPINIÕES DE ENFERMEIROS

RESUMO

O objetivo deste estudo é analisar a qualidade do atendimento de um time de resposta rápida do Hospital Universitário de Londrina (PR) quanto às dimensões estrutura, processo e resultado segundo a opinião dos enfermeiros que vivenciam esse trabalho. Trata-se de uma pesquisa quantitativa do tipo exploratório-descritivo. Os dados foram obtidos em abril e maio de 2012, por meio de um questionário respondido por 22 enfermeiros de unidades de internação médico-cirúrgica. A análise dos dados ocorreu com os índices percentuais de positividade em relação às dimensões em estudo, sendo padronizado para esta pesquisa o índice $\geq 70\%$. Os índices de positividade obtidos nas dimensões foram de 45,96% (estrutura), 56,54% (processo) e 74,99% (resultado). Conclui-se que na média geral da pontuação das dimensões nenhuma atingiu o índice preconizado. Foram constatados os pontos vulneráveis que merecem ser mensurados com as dimensões avaliadas e aqueles que reforçam o atributo da gestão da qualidade na instituição segundo as opiniões dos enfermeiros.

Palavras-chave: Gestão da Qualidade. Equipe de respostas rápidas de Hospitais. Enfermagem.

ANÁLISIS DE LA CALIDAD DEL EQUIPO DE RESPUESTA RÁPIDA EN UN HOSPITAL UNIVERSITARIO: OPINIONES DE ENFERMEROS

RESUMEN

Este estudio tiene como objetivo analizar la calidad de la atención prestada por un equipo de respuesta rápida del Hospital Universitario de Londrina, Paraná, Brasil, en cuanto a las dimensiones estructura, proceso y resultados según la opinión de los enfermeros que se dedican a este trabajo. Se trata de una investigación cuantitativa con un enfoque exploratorio y descriptivo. Los datos se obtuvieron en abril y mayo de 2012, por medio de un cuestionario respondido por 22 enfermeros de unidades de hospitalización médico-quirúrgica. El análisis de datos se llevó a cabo mediante los índices porcentuales de positividad con relación a las dimensiones estudiadas, y el índice $\geq 70\%$ fue estandarizado para esta investigación. Los índices de positividad obtenidos en las dimensiones fueron de 45,96% (estructura), 56,54% (proceso) y 74,99% (resultado). Se concluye que en la media general de la puntuación de las dimensiones ninguna de ellas alcanzó el índice recomendado. Se

identificaron puntos vulnerables que merecen ser medidos con las dimensiones evaluadas y aquellas que refuerzan el atributo de la gestión de calidad en la institución según las opiniones de los enfermeros.

Palabras clave: Gestión de Calidad. Equipo de Respuesta Rápida de Hospitales. Enfermería.

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