



ORIGINAL ARTICLE

## Quality assessment of the emergency service at the Pedro Borrás Astorga University Polyclinic

Evaluación de la calidad en el servicio de emergencia del Policlínico Universitario Pedro Borrás Astorga

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### ABSTRACT

**Introduction:** improving the quality of medical care by eliminating or minimizing errors is a current focus of hospital services.

**Objective:** To evaluate the quality of care in the Emergency Unit of the Pedro Borrás Astorga Polyclinic in Pinar del Río 2022.

**Methods:** a quality analysis was conducted, evaluating structural, process, and outcome variables. Theoretical, empirical, and statistical methods were used, including direct observation, interviews, surveys, and document review. Biostatistical processing included ratio, proportion, percentage, measures of central tendency, and measures of dispersion.

**Results.** weaknesses were detected and strengths identified, and a threat and an opportunity were accepted. Concrete actions were proposed to address the weaknesses, building on the strengths and neutralizing the threat with the proposed opportunity. The most significant weaknesses were: incomplete medical staffing; lack of adherence to Good Practice Guidelines; and slight delay in the initial administration of antibiotics. Concrete actions were proposed.

**Conclusions:** in the emergency department of the "Pedro Borrás Astorga" polyclinic in Pinar del Río, weaknesses and strengths have been identified that directly influence the quality of care provided. Limitations in the structure, processes, and results are evident in providing quality care to emergency patients. The proposed actions for implementing a Quality Management System constitute a significant tool for achieving excellence in health services.

**Keywords:** Quality; Emergency; Health.

## RESUMEN

**Introducción:** Elevar la calidad de la asistencia médica, eliminando o minimizando los errores en la atención, es interés actual de los servicios hospitalarios.

**Objetivo:** Evaluar la calidad de la atención en la Unidad de Emergencia del policlínico Pedro Borrás Astorga de Pinar del Río 2022.

**Métodos:** Se realizó un análisis de la Calidad, evaluándose variables de estructura, de procesos y de resultados. Se utilizaron métodos teóricos, empíricos y estadísticos, entre ellos: observación directa, entrevista, encuestas y revisión de documentos. Procesamiento bioestadístico: razón, proporción, porcentaje, medidas de tendencia central y medidas de dispersión.

**Resultados.** Se detectaron debilidades y se identificaron fortalezas, aceptándose una amenaza y una oportunidad; proponiéndose acciones concretas para, apoyándose en las fortalezas solucionar las debilidades, neutralizando la amenaza con la oportunidad planteada. Las debilidades más significativas fueron: No completamiento de la plantilla médica, no adherencia a las Guías de Buenas Prácticas. Ligera demora en administración inicial de antibióticos. Se propusieron acciones concretas.

**Conclusiones:** En el servicio de emergencia del policlínico "Pedro Borrás Astorga" de Pinar del Río se constatan debilidades y fortalezas que influyen directamente en la calidad de la atención que brinda. Se aprecian tanto limitaciones en la estructura, en los procesos como en los resultados para brindar una atención de calidad en el paciente de urgencia. La propuesta de acciones para la implementación de un Sistema de Gestión de la Calidad constituye una herramienta de significativo valor para lograr la excelencia en los servicios de salud.

**Palabras Clave:** Calidad; Emergencia; Salud.

## INTRODUCTION

Quality in health is defined as the degree to which health services for individuals or communities increase the likelihood of achieving desired health outcomes and are consistent with the updating of professional knowledge.<sup>(1,2)</sup>

Quality aims to achieve safe health care where the patient receives error-free care, their health is restored to the extent possible and without collateral damage resulting from the care received; and reliable health care where both patients and their families perceive the security provided to them in such a way that they fully trust the work of health workers.<sup>(3)</sup>

In the late 1980s, concern for quality spread to health care, thus beginning a movement that would reach its peak with the 1999 report by the United States Institute of Medicine entitled, "To Err Is Human: Building a Safe Health Care System," which stated that the American health care system was unsafe and that between 45,000 and 98,000 Americans died each year as victims of medical errors.<sup>(3,4)</sup> In 2001, the Institute of Medicine produced a new report entitled, "Crossing the Quality Gap," which confirmed the deficiencies outlined in the previous report and also reflected in the 2005 and 2009 reports.<sup>(4)</sup>

In Cuba, in 2007, the Minister of Public Health, through Resolution #145, directed the implementation of the "Program for the Continuous Improvement of Quality in Hospital Services" in order to seek the improvement of medical care. However, the implementation of Quality Management Systems (QMS) has encountered many difficulties.

Focusing on Emergency Units (ECU), multiple factors have been identified that could eventually encourage the occurrence of medical errors, including: Admission times in ECUs. There are varying criteria regarding the best time; the morning is occupied by non-medical activities; the most qualified staff is not present at night; and nighttime decisions must be made by individuals, not by teams. Untrained staff in ECUs. Inadequate bed-to-nurse ratio. Excessive prescriptions. Overload of actions, especially in the case of unexpected events. Communication problems between doctors and nurses. Illegible handwriting. Difficulties in staff relationships. Overcrowding of beds. Distraction, tiredness, demotivation or stress of staff.<sup>(4,5)</sup>

The growing need to improve care for hospitalized patients in healthcare facilities, the need to avoid or at least reduce the occurrence of errors that threaten those receiving care in healthcare services; as well as the fact that Emergency Care Units are taking on an increasingly leading role in the care of seriously ill or high-risk patients, has led to the understanding of the urgency of implementing a Quality Management system in the emergency room of the "Pedro Borrás Astorga" Polyclinic. The first step in implementing Quality Management consists of understanding its necessity, and the second is to perform an analysis of the current situation of the organizational unit under analysis in order to detect its weaknesses and strengths and outline actions to, based on the strengths, resolve the weaknesses, as well as create the documentary base for the system. Therefore, this research is carried out with the objective of evaluating the quality of care in the Emergency Unit of the Pedro Borrás Astorga Polyclinic in Pinar del Río, 2022.

## METHODS

A qualitative, longitudinal and prospective study was carried out at the "Pedro Borrás Astorga" Polyclinic in the province of Pinar del Río during 2022.

Methods specific to qualitative research were used, which include direct observation, surveys, interviews and document review (medical record, minutes of meetings of the service and quality circles, reports of the medical advisory committees in the service, good practice guides, organization and procedure manuals and statistical reports of the service).

Variables covering all aspects of quality were used:

- Structural variables: condition of the premises, completeness and functionality of medical equipment, availability of medications, healthcare personnel in the service, care category, nurse-to-bed ratio.
- Process variables: documented processes, waste processes, waste actions, identification of service delivery processes, process map, analysis, control and improvement processes, and Good Practice Guides.
- Outcome variables: delay in antibiotic compliance, expedited transfer, discharge time.

The analysis methods typical of qualitative research were used: ratio, proportion, central tendency (mean, median, mode) and dispersion (amplitude or range and variance), as appropriate.

The purpose of this study is to evaluate the quality of care provided in the Emergency Department of the Pedro Borrás Astorga Polyclinic by identifying its strengths and weaknesses. The data obtained in this study are managed solely for this purpose and will not be used for any other purpose or disclosed without the consent of the Department's management.

## RESULTS

There are three rooms in the unit designated for the care of critically ill patients; of these, two (66,6 %) are in fair construction condition, one (33,3 %) has poor structural conditions, and there is no room in good condition in the unit. The unit must have 17 pieces of medical equipment, considered essential to guarantee adequate patient care. Of these, eight pieces are in optimal condition, and two are in poor condition or broken. Their distribution is shown in Table 1.

**Table 1.** Completeness and functionality of medical equipment in the emergency room.

Equipment	There must be	They exist	Functionality
Monitors	2	2	Optimal
Fans	2	1	Optimal
Aspiration	2	1	Optimal
Flumiter	2	2	Optimal
Infusion pumps	2	1	Optimal
Pulse oximeter	2	1	Optimal
Defibrillator	1	1	Unusable
Electrocardiograph	1	0	0
Stretcher with portable ventilator	1	0	0
Wheelchair	2	1	Disrepair

During the period studied, no difficulties were detected with the supply of basic medications (antibiotics, muscle relaxants, 0,9 % saline solution, 5 % dextrose, electrolytes, epinephrine, atropine, beta-blockers, antiarrhythmics).

Regarding healthcare personnel, only 80 % of the medical staff and 66,6 % of the nurses are covered. 20 % of the doctors and 33,3 % of the nurses are fulfilling an interactionist mission. Of the service staff, 11,76 % are doctors specialized in intensive care, while only 5,88 % of the nurses specialize in this branch (Table 2). The nurse-bed ratio is 2,50 nurses per bed.

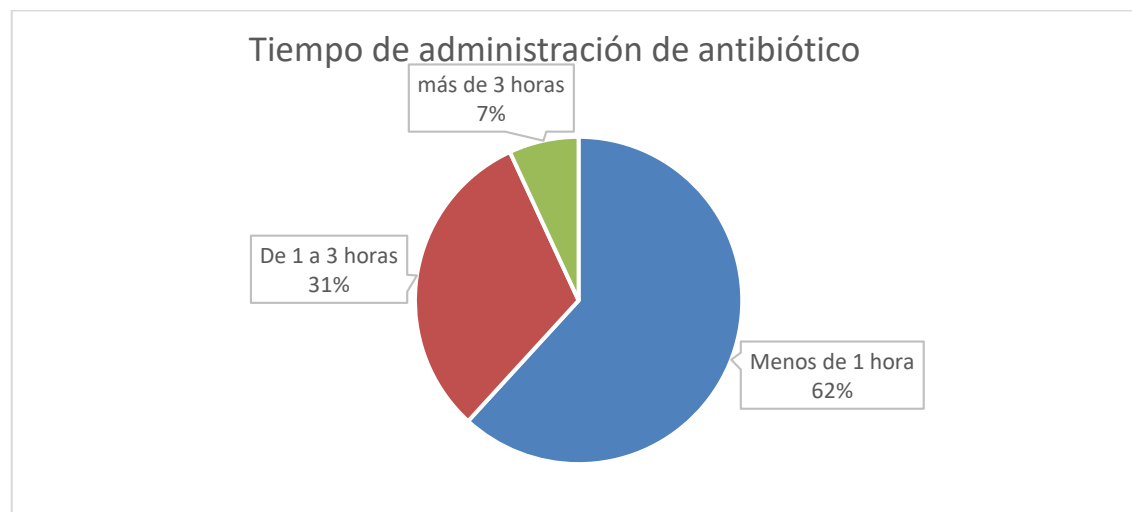
**Table 2.** Healthcare personnel of the service and care category in the emergency room.

Health personnel		Doctors (No/%)	Nurses (No/%)
Health personnel		5 (100)	12 (100)
Cubierta real		4 (80)	8 (66,6)
Approved Template		1 (20)	4 (33,3)
Care category	Intensive care specialists	2 (11,76)	1 (5,88)
	Staff with specific training in intensive care	3 (17,64)	11 (64,70)

A total of 19 service delivery processes were identified; none of these were documented. Seven of them were protocolized in the Organization and Procedures Manual, representing 36,84 % of the service delivery processes that were protocolized, but as procedures or routines, not documented as processes. Neither the Resource Control nor the Analysis, Measurement, and Improvement processes were identified and, therefore, are not documented. No waste processes were found. The service delivery processes are not identified. There is no process map for the department. The analysis, measurement, and improvement processes exist and are functioning, but are neither defined nor documented as processes.

The main conditions treated in the department have been identified and are protocolized in the Good Practice Guidelines. Ten common or important conditions are treated in the Emergency Unit: multiple trauma, cerebrovascular diseases, cardiogenic shock, respiratory sepsis, cardiac arrhythmias, acute pulmonary edema, acute coronary syndrome, heart failure, bronchial asthma attacks, and cardiac arrest. 100 % of these are included and standardized in the good practice guidelines. Due to their importance and relative frequency, other conditions are also included: community-acquired respiratory sepsis, COPD, and pulmonary thromboembolism.

Chart 1 shows how, of the 144 indications reviewed in patients treated in the unit, it was found that the prescribed antibiotics were administered within the first hour after the indication in 62 % of cases, while only 7 % received them after three hours. (Chart 1).

**Graph 1.** Delay in administering antibiotics due to new indications in the emergency room.

Once the decision was made to transfer the patient to a higher-level hospital, the average transfer time in most cases was two to three hours, accounting for 51,3 % of the total cases, as shown in Chart 2.



**Graph 2.** Streamlining the transfer to the hospital of patients treated in the emergency room.

Regarding the discharge decision among the 127 randomly reviewed medical records, as can be seen, in most cases the discharge decision was made between 8 a.m. and 4 p.m., that is, during times when the Unit's staff was working. This represents 69,4 % of discharges in the sample studied. In only 24 cases, representing 18,8 % of the total, was the discharge decision made between 4 p.m. and 12 p.m., and in only 15 patients (11,8 %) was it made after 12 p.m.

## DISCUSSION

In recent years, the quality of emergency services has gained significant importance, as they are the first point of contact between the population and a healthcare institution. The quality of care goes beyond the attitude or actions of the healthcare personnel caring for the patient; it also includes aspects related to the facility's infrastructure, services, availability of resources, among other aspects.<sup>(6)</sup>

Regarding infrastructure, the emergency care facilities of the Pedro Borrás Polyclinic present maintenance difficulties, the main ones found by observers being missing tiles and/or cracks in the walls, poor condition of floors, doors and sanitary structures, aspects that conspire against patient safety by constituting reservoirs of dust and bacteria, interfering with adequate hygiene and favoring the presence of sepsis, in addition to altering the user's perception of the safety and quality of the care received, creating discomfort and dissatisfaction in the population.<sup>(7)</sup>

Several studies reveal that the poor structural conditions of the premises increase the risk of errors and/or adverse effects in health institutions.<sup>(7,8)</sup>

Medical equipment is an important part of quality assessment, as its objective is to improve and complement the diagnosis and monitoring of critically ill patients, as well as facilitate the proper administration and dosage of drugs. The presence of sufficient equipment to cover the care demands of a unit, in addition to its functionality, in order to guarantee adequate comprehensive care for emergency patients, has been evaluated by several authors,<sup>(8,9,10)</sup> who agree that, in several Latin American countries, the equipment available in care and emergency units is insufficient to cover all their needs, the situation being more critical in rural and/or hard-to-reach areas, where there is a shortage of basic equipment, and the existing equipment is broken or malfunctioning, which is consistent with what was proposed in this research.<sup>(11)</sup>

The supply of basic medications is a crucial element in assessing the quality of care. In Cuba, despite the difficulties encountered in recent years in obtaining medications on international markets, alternatives have been sought to ensure adequate supplies in healthcare centers. First-line drugs for the treatment of some conditions are sometimes unavailable. However, efforts are made to guarantee second-line options that demonstrate similar efficacy, constituting a strength in the provision of care to the population.

Human resources constitute an important pillar in the care of the patient, serious and non-serious, the existence of sufficient qualified health personnel for the care of the population has been evaluated on multiple occasions, in Latin America, there are deficiencies in terms of health personnel, where it is insufficient to cover the needs of certain services, sometimes having to be replaced by unqualified personnel or with little experience in the management of serious patients, a situation that is more marked in rural areas.<sup>(12)</sup>

Among the main factors identified that favor this situation were work overload, exhaustion of health personnel, inadequate working conditions, insufficient salaries to cover the living needs of the staff, among others. Which is in disagreement with what is raised in the present investigation because, despite the difficulties encountered, the staff of both medical and nursing staff was sufficient to guarantee adequate care in the established period.

The nurse-bed ratio in the present study, although considered acceptable, should be extrapolated to the context of the emergency patient, who at a given time may not be sufficient for an eight-hour shift. The nurse-bed ratio in the pursuit of quality is important because the number of procedures, indications, and interventions performed in the emergency setting can be significant, thus leading to errors by nursing staff. Having more than one nurse to support these situations reduces the care load and limits the number of errors.<sup>(13,14)</sup>

Processes in the area of quality of medical care are dynamic elements that encompass actions that are executed in an organized manner, the use of resources and whose purpose is to add value to the element received at the beginning of the process. In the medical field, every process aims to improve what is received and this objective is achieved by a set of organized actions.<sup>(15)</sup> Organizational aspects cannot be forgotten and organization by processes, where the function and responsibility of each one is clear, and at the same time there are measurement indicators, are essential aspects.

One of the difficulties shown in the present research results from the fact that, despite being known and exemplified by healthcare professionals, the processes are not defined as such in the institution. No current studies were found in the literature consulted that evaluate the processes as such and their relationship with quality.



Good practice guides and care protocols are very useful instruments that facilitate and guide medical and nursing actions, achieving safe actions for the patient and staff.<sup>(16)</sup> The main conditions treated in the polyclinic department have been identified in the service and are protocolized in the Good Practice Guides, but the mechanisms to verify adherence to them by the service staff are not established, which constitutes one of the weaknesses identified by the researchers.

Errors in the administration of antibiotics are more frequent than is believed, they can affect any of the steps of the medication,<sup>(16)</sup> being particularly frequent the delay in the administration of antibiotics. In studies carried out previously it is suggested that the delay of more than one hour between prescription and compliance of an antibiotic increases mortality in patients by approximately 7,6 %. Some factors that influence the delay in the administration of antibiotics in the unit were identified, of which the occurrence of adverse effects, which require mobilization of the staff and a large number of demanding patients were the most frequently indicated.

The delay in transferring to a higher level hospital once decided, is dependent on a series of factors, mostly unrelated to the unit, such as the availability of empty beds in the hospital's emergency department, ambulance service, among others, although there are internal factors that also influence, however, their evaluation is not the objective of this research, but it is worth noting that the time it takes for a patient to be transferred constitutes hours lost from receiving another patient and directly influences the availability of beds and therefore, indirectly, the functionality of admission of new cases.

The transition process in emergency units generally involves patients, family members and staff. The decision to transfer patients depends on their condition and the need for beds. The transfer causes anxiety in patients and even more so if it is carried out at night.<sup>(16,17)</sup>

## CONCLUSIONS

In the emergency department of the "Pedro Borrás Astorga" polyclinic in Pinar del Río, weaknesses and strengths have been identified that directly influence the quality of care provided. Limitations in the structure, processes, and results are evident in providing quality care to emergency patients. The proposed actions for implementing a Quality Management System constitute a significant tool for achieving excellence in health services.

## Conflict of Interest

The author declares that there is no conflict of interest.

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