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Application of the balanced scorecard in an emergency department of a regional hospital in Morocco

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ABSTRACT

This research aims to evaluate the effectiveness of an emergency department in Morocco using a customised Balanced Scorecard (BSC). Given the challenges faced in today's hospital environment, such as an ageing population and budgetary constraints, this study highlights key indicators that encompass the financial, customer, process and learning domains. The data is collected using a mixed method approach. The results highlight the importance of more effective data management and accumulated staff involvement in achieving sustainable performance. The aim of the optimised Balanced Scorecard is to improve both operational efficiency and patient satisfaction. Successful implementation relies on effective data management and staff engagement.

Keywords: *BSC; hospital performance; emergency services; Moroccan healthcare system.*

1. INTRODUCTION

In the current context, hospitals are facing a number of pressures and emerging problems that are hampering the achievement of the desired performance.

Demographically speaking, the ageing of the population is increasing the need for long- term care and the use of treatments for chronic illnesses, which is putting pressure on hospital structures and increasing the length of appointments. Epidemiologically, we are witnessing a growing increase in non-communicable diseases such as diabetes, cardiovascular disease and cancer, as well as the emergence of new pandemics (COVID- 19), which complicates the hospital's mission and requires the mobilisation of diversified and significant resources. From a financial point of view, many studies characterise healthcare organisations as major consumers of resources and places where waste occurs, leading to the introduction of These measures have a negative impact on the hospital's ability to invest and/or recruit. These measures have a negative impact on the hospital's ability to invest and/or recruit, which in turn affects the performance of these care establishments.

Faced with this situation, decision-makers have turned to the tools provided by the new public management in order to adopt better managerial approaches to alleviate the above- mentioned problems.

In Morocco, an overhaul of the healthcare system is currently being implemented to strengthen five functions:

- Improving health service provision ;
- Setting up a human resources management system ;
- Generalisation of the health information ;
- Improving the financing of the healthcare system ;
- Strengthening the governance of the Moroccan healthcare system.

These guidelines aim to establish an equitable health system, quality care and medical coverage for all individuals, which is perfectly in line with the WHO's conceptual framework(Abdelaziz et al., 2018)

Hence the need for ongoing evaluation of hospital performance. Most countries have developed frameworks and tools for assessing the performance of healthcare organisations and systems. A review of the literature reveals a number of unresolved theoretical and methodological issues.

Although hospital performance is multidimensional, complex and difficult to explain, it must be understood as a contingent and paradoxical phenomenon (FLILISS & BENABDALLAH, 2022).

It is undeniable that hospital performance is a major issue in the healthcare sector, except that this performance is not reduced solely financial aspects, but also encompasses operational dimensions, quality of care, patient satisfaction and many others. In this respect, a number of authors mention that a performance indicator is an essential piece of data for implementing action and evaluating results (Bhar Layeb et al., 2021).

However, it is important to emphasise that hospital performance measures must be chosen carefully and must be in line with the hospital's strategic objectives. A balanced approach, incorporating both financial and non-financial indicators, is needed to provide a comprehensive view of performance and avoid potential biases.

Hence the importance of the balanced scorecard (BSC), seen by its developers as an innovative management control (Charbon, 2001). This tool certainly goes beyond measures based solely on financial performance, by combining financial and non-financial measurement indicators.

These indicators are grouped into four dimensions: Learning and Growth, Internal Process, Financial and Customer(Elhamma, 2014).

The characteristics of the BSC allow this management tool to be used either as an interactive control lever, enabling decision-makers to interact with their subordinates to encourage the emergence of initiatives and strategies. Or as a diagnostic control system offering regular comparison of results against predetermined standards, enabling strategic alignment and the implementation of deliberate strategies.

As part of our research, we note the following: performance are virtually non-existent and the indicators used are dictated by the Ministry of Health and Social Protection. The set of indicators used does not provide an overall picture of hospital performance, nor can be applied all hospital departments.

Hence the originality of our work, which seeks to construct a BSC adapted to the Moroccan hospital context and more specifically to the emergency department of the AL GHASSANI regional hospital in Fez, with a view to sharing it with managers to ensure hospital performance management and make informed choices.

2. METHODS

This work uses a methodology based on constructivism, a paradigm founded on the principle of interaction between subject and object (*Les méthodes qualitatives en psychologie et sciences humaines de la santé*, 2025), i.e. the confrontation between the representations resulting from the researcher's experiences and the object of his research.

This type of research stems from a desire to transform traditional methods of response in a specific context (FLILISS, 2024). Constructivism aims to produce useful and relevant operational knowledge for action. This desire for transformation often translates into a project to develop management models and/or tools, as is the case for us.

Table 1: hourly volumes and profiles of professionals involved in research into the perception of hospital performance.

Nature of activity	Profile interviewed	Number	Services	Volume schedule
Analysis of perceptions of Actors of Service of emergencies AL GHASSANI on the concept of performance.	Medical	15	08 doctors Specialists of services hospital	05h 10min
			01 senior emergencies	
			06 centre doctor business medical	

	Nursing	14	01 head nurse	04h 25min
			07 nurse carer.	
			06 frame nurse.	
	Frame administrative	08	Business Unit administrative	03h10min

In this stage, we describe the emergency department, its managerial practices in terms of performance management, its hospital data management system and, lastlya map of the overall patient management process in our study department.

We will describe the department in our study. This description will enable us to understand the overall and detailed functioning of the emergency department. In order to understand the emergency department in its entirety, we will present it as a sub-system which is an active participant in a more complex system and which is made up of different processes and an environment.

The links between these processes are extremely important in the delivery of the service. We went through several stages identification. These were made possible by years of work in the healthcare sector, direct observation semi-structured interviews and analysis of internal and external documents.

Designing a balanced scorecard for a multidisciplinary team in an emergency department.

In the emergency department of the AL GHASSANI hospital, the site of our study, we met several times with the head doctor, the department doctors, the nurses and the head emergency nurse in order to determine their perceptions of performance and to formulate a strategy specific to the emergency department.

While the players described as 'carers' focused mainly improving the quality of care provided to patients, the players described as 'non- carers', such as administrators, focused more on objectives aimed at optimising processes and à reduce the costs of intake in costs. We have tried to reconcile the different approaches and propose a result that meets the expectations of the various hospital stakeholders.

In the light of these observations, we designed specific objectives for each sub-process identified. These sub-processes have many similarities in terms of perspectives, strategic objectives, key success factors and operational objectives. Nevertheless, distinctions are observed in the "Internal Processes" perspective of the sub-processes, integrating complementary aspects such as the quality of diagnosis and repair. These disparities reflect the particular needs and priorities associated with the specific nature of each sub- process.

Following this extended stage, we decided to focus on validating the suggested indicators. To ensure the accuracy and credibility of this approach, called on academics specialising in hospital management and performance evaluation. Their input provided a scientific and critical perspective on the selected indicators. also worked closely with the hospital's sole statistician, whose in-depth expertise in data analysis played a crucial role in improving data collection and processing. In this way, we were able to precisely identify the performance indicators, as well as the frequency with which they were collected, calculated and analysed, before integrating them into the system in the multi-dimensional BSC performance model, ensuring a comprehensive approach tailored to the requirements of the establishment.

3. RESULTS

The main objective of this study was to develop a multidimensional balanced scorecard adapted to the requirements of the various hospital managers responsible for supervising the performance of the emergency department, which constitutes the field of study of our research (FLILISS, 2023). Within this framework, we have developed 29 performance indicators divided into categories of dimensions of the Balanced Scorecard and linked the objectives of the department and the hospital. Raw data is regularly integrated into the Balanced Scorecard. These data are collected in a hybrid way, using both a computerised information management system and physical media such as registers, sheets, files, etc. They will be analysed using the data collected in the Balanced Scorecard. The data will be analysed using Microsoft Excel. This section presents the results of our research, the aim of which was to develop an innovative method evaluating performance in the emergency department. Unlike conventional methods, we divided the department into four well- defined sub-processes. The aim was to capture the complexity of the operations and highlight the levers for improvement specific to each one. A balanced scorecard was

developed for each sub-process, including key performance indicators. The results below (tables 2,3,4,5) highlight the effectiveness of this multidimensional approach and its potential to improve the overall performance of the department.

Table 2: Objectives and performance indicators for the patient triage unit sub- process.

Perspective	Objectives strategic	Objectives operational	Indicators	Manager	Frequency
	Increase income and control the costs	Ensure a billing correct from activity	Amount of Care non billed to patients	Frame administrative, Pole of business administratives	Quarterly
Financial		Master the Costs of operation	Salary costs for professional s needed to run the business of service	Cadre administratif, pole des affaires administrativ es	Annual
			Salary costs for Agents of necessary for the operation of the of service.	Cadre administratif, pole des affaires administratives	Annual

		Limit losses and damage to equipment	Amount of work maintenance and repair at the service	Administrati ve executive des affaires administrativ es	Annual
			Amount of items returned to the pharmacy	Responsible for the pharmacy.	Quarterly
Customer	Ensure customer satisfaction	Offer service and efficient	Respect of priority of sorting	Head emergency nurse	Quarterly
		Reduce The number of claims	Number of sorting	Head emergency nurse	Quarterly
		Reduce the number transfers to other structures of health	Rate of transfers from The sorting	Head emergency nurse	Quarterly

Internal process	Optimise processes and guarantee the Quality of care	Optimise The time of visit of patients in triage	Average duration assessment	Emergency chief nurse	Quarterly
		Reduce The number of readmission to triage	Number of patients readmitted to sorting	Emergency chief nurse	Quarterly
		Ensure correct transmission of information to the doctor	Clinical diary completed by the doctor.	Emergency chief nurse	Quarterly
Organisational learning	Guarantee quality human resources and have of service of	Developing sorting methods	Rates of patient satisfaction with the sorting	Head emergency nurse	Quarterly
	reference and cutting- edge technology	Ensure à adequate training	Number of training courses organised	Administrativ e manager ; pole des affaires administrative	Annual

		Adapt human resources to actual activity.	Rates adapting human resources à activity	Administrativ e manager ; pole des affaires administrativ e	Annual

Table 3: Objectives and performance indicators for the medical observation unit sub- process:

Perspective	Objectives strategic	Objectives operational	Indicators	Manager	Frequency
	Increase	Ensure correct invoicing of activity	Amount of Care not Billed to patients	Administrati ve executive des affaires administratives	Quarterly
	revenues and control costs	Controlling operating costs	Salary costs for professionals necessary for the operation nt of the service	Cadre administratif, pole des affaires administratives	Annual
Financial			Staff salary costs Subcontractin g costs necessary for the operation of the company nt of the service.	Cadre administratif, pole des affaires administratives	Annual
		Limit loss and damage to equipment	Amount of maintenance maintenance and repair work	Administrati ve executive des affaires administrativ es	Annual

			Amount of items returned to the pharmacy	Responsible for the pharmacy.	Quarterly
Customer	Ensure	Offering a fast, efficient service	Respect of priority In door observation	Head emergency nurse	Quarterly
	Customer satisfaction	Reduce the Number of complaints	Number of claims in room observation	Head emergency nurse	Quarterly
	Optimise processes and guarantee the Quality of care	Reduce the average length in the observation room	Average length of Stay of patients aged 75 and over -for any speciality-	Head emergency nurse	Quarterly
Internal process			Average length in the observation room .-patient medicine-	Head emergency nurse	Quarterly
			Average length in the observation room -patient surgery-	Head emergency nurse	Quarterly
		Optimise access room observation	Rates functional occupancy	Head emergency nurse	Quarterly

		Ensure correct transmission of information to to doctor	Clinical diary completed by the doctor	Head emergency nurse	Quarterly
Organisational learning	Guarantee quality human resources and have of service of reference and				
		Ensure adequate training	Number of training courses organised	Administrativ e manager ; pole des affaires administrativ e	Annual
	cutting-edge technology	Adapt human resources to actual activity.	Rates adapting human resources à activity	Administrativ e manager ; pole des affaires administrativ e	Annual

Table 4: Objectives and indicators selected for the emergency resuscitation unit sub- process :

Perspective	**Objectives strategic**	**Objectives operational**	**Indicateurs**	**Manager**	**Frequency**
Financial	Increase revenues and control costs	Ensure correct invoicing of activity	Amount of care not billed to patients	Administrati ve executive des affaires administrativ es	Quarterly

		Master the Costs of operation	Salary costs for professionals needed to run the business of service	Cadre administratif, pole des affaires administrativ es	Annual
			Staff salary costs Of sub	Administrati ve manager, pole of business	Annual
			necessary for the operation of the of service.	administrativ e	
		Limit loss and damage	Amount of maintenan ce work and repair at the service	Cadre administratif, pole des affaires administrativ es	Annual
		to equipment	Amount of items returned to the the pharmacy	Responsible for the pharmacy.	Quarterly
Customer	Ensure customer satisfaction	Offering a fast, efficient service	priority in the outpatient department	Head emergency nurse	Quarterly

		Reduce the number of claims	Number of claims in the outpatient department	Head emergency nurse	Quarterly
Internal process	Optimise processes and guarantee the Quality of care	Optimise access to the shock room	Rates occupation works lle	Head emergency nurse	Quarterly
		Reduce the average length of stay in the outpatient department	Average length of stay in the de- concentration	Head emergency nurse	Quarterly
		Ensure cor rect transmission of information to the doctor	Clinical diary completed by t he doctor	Head emergency nurse	Quarterly
		Reduce the number of transfers to other structures from health	Number of transfers to other structures sanitary.	Head emergency nurse	Quarterly

Organisational learning	Guarantee quality human resources and have of service from reference and cutting- edge technology	Adapt human resources to actual activity.	Rates adapting of resources activity	Administrative Manager, PAA	Annual
		Ensure à adequate training training.	Number of training courses organised .	Administrativ e Manager, PAA	Annual

Table 5: Objectives and indicators for the emergency department consultation sub- process :

Perspective	**Objectives strategic**	**Objectives operational**	**Indicators**	**Manager**	**Frequency**
Financial	Increase revenues and control costs	Ensure correct invoicing of activity	Amount care not Billed to patients	Administrative executive des affaires administratives	Quarterly
		Master the Costs of operation	Salary costs for professional s needed to run the business of service	Cadre administratif, pole des affaires administratives	Annual

			Salary costs for agents of necessary for the operation of the of service.	Cadre administratif, pole des affaires administratives	Annual
		Limit losses and	Amount of work of maintenance	Administrative executive, pole of	Annual
		and			
		damage to equipment	e and service repair	administrative affairses	
			Amount of items returned to the pharmacy	Responsible for the pharmacy.	Quarterly
		Offer fast, efficient service	Respecting consultation priority	Head emergency nurse.	Quarterly
		Reduce The number of claims	Number of claims in consultations	Head emergency nurse.	Quarterly

Customer	Ensure customer satisfaction	Ensure correct transmission information to the patient	Rate of correct correct transmission of data to patients.	Head emergency nurse.	Quarterly
	Optimise processes and guarantee the Quality of care	Optimising patient waiting times.	Duration waiting time before c onsultation.	Head emergency nurse	Quarterly
Internal process		Efficiently managing the flow of Patients at consultation	Average duration assessment.	Head emergency nurse	Quarterly
		Reduce the average length of stay on stretchers	Average length of stay of patients on stretcher	Head emergency nurse	Quarterly
			Rates of stay from month of 24H.	Head emergency nurse	Quarterly
			Rates of Stay of more than 24 hours.	Head emergency nurse	Quarterly

		Reduce the number transfers to other structures of health	Number of transfers to to other health facilities.	Head emergency nurse	Quarterly
Organisatio nal learning	Guarantee quality human resources and have of service of reference and cutting- edge technology	Adapt Human resources to actual activity.	Rates adapting resources to activity	Administrative Manager, PAA	Annual
		Ensure adeq uate training	Number of training courses organised.	Administrativ e Manager, PAA	Annual

The tables above (2; 3; 4; 5) for assessing the performance of the emergency department, based on the development of the Balanced Scorecard (BSC) model, adopt a multidimensional approach to evaluating its effectiveness. They include financial aspects such as cost control and value for money, customer aspects such as satisfaction, waiting time reduction and quality of care, internal aspects including process efficiency, patient flow management, and optimisation of human and technological resources, and finally learning and growth aspects such adaptation to change and staff training. Each viewpoint is subdivided into strategic and operational objectives, with each linked to measurable and uantifiable key performance indicators (KPIs). Assigning responsibilities and establishing a monitoring frequency (quarterly or annually) ensures regular monitoring and effective management of corrective measures. This matrix provides a comprehensive and relevant tool for assessing the overall effectiveness of the emergency department and identifying areas for improvement to ensure quality of care and value for money. The use of the Balanced Scorecard (BSC) provides a holistic view of performance, avoiding excessive focus on any one area, and encouraging a balanced approach to continuous improvement.

4. DISCUSSION

Once the design of our BSC model has been completed and presented to the various stakeholders in the emergency department of our study institution, its implementation is crucial. However, its introduction will face several obstacles, as has been reported in several studies on the use of BSC in hospitals.

The main reason cited in the literature for resistance to the use of TBE is the lack of support from healthcare professionals. Indeed, hospital organisation is characterised by the existence of a multitude of professional categories, both carers and non-carers. As a result, the interests of the various players differ, in the absence of a unifying strategic vision communicated to the whole organisation.

Thus, the degree Team Commitment (TBE) is closely linked to the mobilisation of individuals and the close collaboration

between the various players(Perray-Redslob & Malaurent, 2015). The main challenge in improving the performance of the emergency department lies in developing a culture of measurement among its stakeholders. This is a battle against the reluctance to include the evaluation of one's own performance in one's working methods, which until has been absent among professionals. To achieve this objective, it is essential to take account of the motivation and empowerment of those involved (Derujinsky- Laguecir et al., 2011).

It should also be noted that the adoption of a competitive approach by the institution, focusing customer satisfaction and service quality, is a determining factor in staff support for the adoption of the BSC, which incorporates multidimensional performance measures.

We also consider the state of the hospital information to be a key factor in the successful implementation and appropriation of the balanced scorecard developed. In our case, the al GHASSANI hospital has a new computerised hospital information system, which is still in its embryonic phase, and which has a number of shortcomings in terms of data collection, entry and reporting. This has negative impact on the quality of care and makes it difficult to report and monitor results. Faced with these shortcomings, and in order to produce the measurement indicators needed for our BSC, as part of our research we designed several data collection tools, each with a frequency determined by the decision- makers. These tools will help to approach the effect of the use of multidimensional PI on improving their performance and to include the service in modern managerial approaches. For this reason, it is important for us to emphasise the need for care teams and head nurses to be involved in the intelligence of the hospital information system, which is the source of the data fed into the PIs that have been set up.

The implementation of a Balanced Scorecard (BSC) in hospitals represents a significant step forward in performance management in healthcare establishments. This tool enables performance to be measured and evaluated using strategic indicators covering four dimensions: financial performance, internal processes, patient satisfaction and organisational learning. Based on recent studies, we find that BSC enables hospitals to better align their strategic objectives with their day-to-day operations, thereby contributing to continuous improvement in care (Al Ahmadi et al., 2021).

Financial pressures in the healthcare sector are forcing hospitals to optimise their resources while maintaining a high standard of care. BSC helps decision-makers to identify sources of waste, reduce costs and reallocate resources more strategically. For example, according to Smith et al (2022), implementing BSC in a hospital led to a 15% reduction in costs over two years, while improving quality indicators. The model we have developed makes use of a large number of indicators, the aim of which is to remedy the dysfunctions observed during our training period, in particular the failure to bill for a large number of treatments provided to patients such as oxygen nebulisation sessions and plaster cast immobilisation for fractures. This had a considerable impact on the department's revenue and the establishment's financial health.

Internal processes are crucial to hospital performance. BSC indicators help managers to monitor and improve processes such emergency management, response times and service quality (Huang et al., 2023). Careful monitoring helps to reduce waiting times and optimise patient flows, which is particularly critical during busy periods. A study by Martínez et al (2023) showed that use of the BSC led to a 20% reduction in waiting times in emergency departments, contributing to greater patient satisfaction. Our model focused on the internal processes specific to emergency departments.

As part of the study, we produced indicators to measure waiting times for the various sub- processes identified, as well as the multiple categories and age groups of patients attending the emergency department.

The importance of patient satisfaction in the hospital sector is now well established, and Balanced Scorecards provide a structure for monitoring this key indicator. Hospitals can include patient satisfaction measures in their BSC and identify areas for improvement (Pereira et al., 2023). According to recent research, hospitals that use the BSC to monitor patient satisfaction have seen a 10% increase in satisfaction scores after three years (Nguyen et al., 2022). One of the focal points in the design of our prospective dashboard is the identification of indicators capable of measuring patient satisfaction in the emergency department. The key indicator used is the number of complaints recorded in each sub-process of the emergency department.

Organisational learning is an important lever for the quality of care and the adaptability of hospitals. By incorporating indicators of staff training and development, the BSC can encourage an environment conducive to continuous learning and skills improvement (Lee et al., 2023). Studies show that hospitals adopting balanced scorecards see a reduction in turnover and an improvement in employee job satisfaction, with positive repercussions on the quality of care (Chavez et al., 2023). One of the major challenges encountered in emergency departments is the inadequate training of doctors and nurses with the skills needed to manage emergency patients. For this reason, we have set out to develop indicators to assess the amount of continuing training received by emergency department staff, and whether it matches the skills required.

5. CONCLUSION:

This study examined the implementation a Balanced Scorecard (BSC) in the emergency department of the Al-Ghassani

regional hospital in Fez. Given the various pressures to which Moroccan hospitals are subject, such as demographics, epidemiology and finances, the study highlights the importance of continuously evaluating their performance. It highlights the shortcomings of conventional methods, which often focus exclusively on financial parameters, and suggests a constructivist approach to designing a Balanced Scorecard adapted to the particular environment of service department environment.

However, the implementation of such a system faces a number of major challenges, such as reluctance to change and the constraints of the hospital information system. The research identified a set of relevant indicators, classified according to the four perspectives of the Balanced Scorecard (BSC): financial, customer, internal processes, learning and growth. The design of this Balanced Scorecard required close collaboration with the various stakeholders in the department, in order integrate their points of view and their priority objectives. The findings of this study make some important contributions. Firstly, the Balanced Scorecard (BSC) proposed to be a concrete and appropriate tool for managing the performance of the Emergency Department. Secondly, the use of constructivist methodology allows the BSC to be adapted more effectively to the specific context. Thirdly, the study highlights the importance of stakeholder involvement and the need for a holistic approach incorporating multidimensional indicators to ensure effective and sustainable hospital performance management.

However, the study suggests the need for further research to examine various aspects in greater depth, including analysis of the long-term impact of BSC implementation, optimisation of the hospital information system and integration of the technological dimension into the performance management process. In conclusion, this study makes a significant contribution to the literature on hospital performance management and opens up new prospects improving the quality of in Morocco.

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