

Economic Efficiency Assessment of Red Crescent Hospital in Wasit Governorate for the Period (2017-2020)

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Abstract

The importance of research lies in the role played by health institutions in providing the best health services to citizens, as well as the need of health institutions for such research, which is of great importance in improving their performance. The research aims to achieve a number of objectives, the most important of which are to identify the hospital's performance and ensure that its economic resources are used efficiently. The research reached a set of conclusions, the most important of which was that the Red Crescent Hospital, despite achieving revenue, is able to cover its costs while remaining a profit margin. However, it suffers from a decline in its economic performance, as overall overall productivity rates decreased during the period of research, ranging in value from 0.738126 to 0.125702 dinars, and its decline is a negative indicator of the hospital's low efficiency in using, coordinating and operating available resources as required. Based on those findings, the research recommended identifying the reasons behind indicators and benchmarks that showed negative results compared to acceptable rates and developing appropriate solutions for them to enhance their outcomes.

Keywords: Wasit Governorate; Red Crescent Hospital; Period (2017-2020)

Introduction

The importance of evaluating hospital performance stems from the importance of hospitals per se in the lives of nations and peoples, and the importance of the services they provide and the descriptions of these services, which are unique and differentiated from other organizations, so the need to evaluate them was urgent. By defining a set of criteria that reflect the economic aspects of the hospital, and were in the form of equations or discretionary patterns developed in certain ways, to be able to express their desired goals in both a quantitative and descriptive manner that evaluates actual performance. Which indicates the pros and cons. The success or failure of the hospital is judged.

The Importance of Research

The importance of research lies in the role played by health institutions in the provision of health and treatment services. Also, one of the international sustainable development goals is to provide health services with the highest standards of quality, equity and equality to all citizens, as well as the urgent need for health institutions for such research which is of great importance in determining their level of performance. Achieving its objectives according to quantitative and qualitative gifts that are more accurately accessible and handled to make the right decisions.

Search Problem

The search problem can be formulated by asking the following questions:

- 1) How efficient is the current economic performance at Red Crescent Hospital in Wasit governorate?
- 2) What criteria are used to measure the efficiency of economic performance at the Red Crescent Hospital in Wasit governorate?

Research hypothesis

Evaluating the efficiency of the hospital's performance using appropriate evaluation criteria helps in the optimal planning and allocation of the resources used by the hospital.

Research Objective

There is no doubt that following scientific and economic methods in the management of hospital institutions is a necessary requirement for their success. This research therefore aims to achieve the following objectives:

1. Recognize the efficiency of Red Crescent Hospital performance and ensure the efficient use of economic resources optimally.
2. Estimate indicators and criteria for assessing economic performance efficiency at Red Crescent Hospital in Wasit governorate.

Research First: Conceptual and Theoretical Rooting of the Evaluation of Economic Performance Efficiency in Hospitals

First, the concept of evaluating the efficiency of economic performance in hospitals

The performance efficiency assessment process is defined as the collection of data and information on achievement during a given period of time in order to compare it with the standards and plan established by the organization in advance, in order to find out what the organization accomplished during this period to reveal the strengths and weaknesses of all management functions within the organization ⁽²⁾.

As regards the evaluation of performance in hospitals, this concept is not materially different from the overall evaluation of performance, as it is defined as a logical measurement process directed at hospital activities to determine the effectiveness and efficiency of the efforts made under these activities. To achieve specific goals by comparing what has already been achieved with previously established standards ⁽¹⁾

The concept of performance efficiency assessment reflects the following aspects ⁽³⁻⁷⁾:

1. Performance appraisal aims to identify the extent to which the organization's objectives and plans have been achieved.
2. The performance appraisal process can be described as a periodic process aimed at reaching the results to be followed to correct deviations and improve performance in future periods.
3. This process helps to set new goals and modify existing plans to achieve a better level of achievement.

Importance of evaluating the efficiency of hospital performance

The importance of evaluating performance in hospitals and health institutions is based on the following considerations:

1. The importance and effectiveness of the roles that hospitals play in modern times.
2. The hospital's social role in prevention, treatment, family planning and population.

3. . Attention to the interaction of health institutions with the surrounding environment, and the identification of health problems affecting the environment, such as diseases and the low level of public health of the population and others.
4. The concept of administering and organizing medical services has evolved from focusing on health services to focusing on current and prospective patients and developing an integrated system for providing such services to achieve patients' satisfaction.

Second Research: Analysis of Red Crescent Hospital Revenue and Costs for the Period (2016-2020)

First, Red Crescent Hospital Revenue Analysis

About Red Crescent Hospital

The Red Crescent Hospital is one of the important pillars of the components of the Iraqi Red Crescent Society. It is one of the hospitals referred to as Lebanese in Wasit governorate. It is under the direct supervision of the Society. The hospital seeks to provide the best medical, surgical and therapeutic services to the people of the governorate. The hospital receives every day and around the clock many illnesses and provides health services to them.

The Red Crescent Hospital was inaugurated on 17/9/2017 in the city of Kut. The hospital consists of two floors and has a capacity for 50 beds spread across three operating and emergency rooms. The hospital was staffed with competent foreign cadres as well as Iraqi cadres, in a step to exchange scientific expertise (from the work of the researcher based on a field visit to the Red Crescent Hospital).

Table (1). Total Red Crescent Hospital Health Services Income for the Period (2017-2020) (dinar)

	Revenue Type	2017	2018	2019	2020
1	Processes	1,127,500,000	5,215,000,000	7,092,500,000	8,795,000,000
2	Advisory	15,250,000	24,712,500	21,000,000	27,000,000
3	Emergency	12,000,000	25,000,000	28,000,000	40,000,000
4	Dental Consultant	15,800,000	107,760,000	94,800,000	112,200,000
5	Pain medicine	6,350,000	11,500,000	15,000,000	18,655,000
6	Rhinoplasty	17,400,000	34,800,000	50,750,000	53,650,000
7	cosmetic revenue	52,000,000	180,000,000	174,000,000	162,000,000
8	Nador	57,000,000	189,000,000	117,900,000	141,000,000
9	laboratory	20,900,000	51,200,000	57,850,000	65,480,000
10	rays	9,992,000	17,976,000	56,765,000	36,450,000
11	pharmacy	185,000,000	585,000,000	750,000,000	950,000,000
12	preterm	15,000,000	33,350,000	39,400,000	71,300,000
13	accommodation fees	20,430,000	35,000,000	39,000,000	64,000,000
14	Birth Certificate	6,870,000	11,610,000	12,620,000	19,100,000
15	drums	19,500,000	58,500,000	44,280,000	58,840,000
16	chime	27,000,000	135,000,000	190,000,000	270,000,000
	the total	1,607,992,000	6,715,408,500	8,783,865,000	10,884,675,000

Source: Researcher's work based on data from Red Crescent Hospital (unpublished data).

For the purpose of assessing the efficiency of Red Crescent Hospital's performance, revenue and costs will be analysed for the period (2017-2020). The hospital is exempt from taxes during this period, in accordance with Act No. 25 of 2015, article 11, as follows:

Analysis of Red Crescent Hospital revenue for the period (2017-2020)

Operating income

The Red Crescent Hospital has the variety of income it receives through the variety of health activities and services it provides to patients as shown in the following table:

Table 1 shows that total hospital revenues increased gradually during the period (2017-2020), with total revenues in 2017 (1,607,992,000) dinars, the lowest income achieved by the

hospital during the specified period, it then rose in 2018 to 6,715,408,500 dinars, an increase of 5,107,416,500 dinars. Revenue continued to rise in 2019, with total hospital service revenue (8,783,865,000 dinars). It achieved an increase of 2,068,456,500 dinars. Revenue reached a maximum in 2020, reaching 10,884,675,000 dinars (2,100,810,000 dinars), due to an increase in the number of hospitalized patients due to the coronavirus pandemic.

Total hospital revenues

Table (2). *Red Crescent Hospital's total annual revenues for the period 2017-2020*

No.	Revenue Type	2017	2018	2019	2020
1	Total revenue from health services	1,607,992,000	6,715,408,500	8,783,865,000	10,884,675,000
2	Cafeteria revenue	16,650,000	30,300,000	32,900,000	33,300,000
	Total hospital revenue	1,624,642,000	6,745,708,500	8,816,765,000	10,917,975,000

Source: Researcher's work based on data from Red Crescent Hospital (unpublished data)

Hospital's share of revenue

The revenues the hospital receives from health services, part of which goes to surgeons and specialists, and the other remaining part is the hospital share, and goes to cover the salaries of staff, resident doctors and nurses, Cover various hospital expenses, ticket and accommodation costs for doctors from abroad and others. The following table shows Red Crescent Hospital's share of total revenues:

Table (3) *Red Crescent Hospital's share of total revenue for the period (2017-2020) (dinar)*

Years	Total Revenue	Hospital Ratio of Revenue	hospital share
2017	1,624,642,000	35%	568,624,700
2018	6,745,708,500	35%	2,360,997,975
2019	8,816,765,000	35%	3,085,867,750
2020	10,917,975,000	35%	3,821,291,250

Source: Researcher's work based on data from Red Crescent Hospital (unpublished data)

Second: Analysis of cost elements in Red Crescent hospital for the period (2017-2020)

Table (4) *Total fixed costs of Red Crescent Hospital for the duration (2017-2020) (dinar)*

No.	The Details	The Value
1	administrative costs	
	Departmental Furniture	150,000,000
	laboratory equipment	10,750,000
	Equipping the periscope unit	3,500,000
	Prepare the wings	3,500,000
	Equipping consulting clinics	2,250,000
	the total	170,000,000
2	Medical devices and furniture	
	medical furniture	15,750,000
	sterilizers	80,000,000
	operating table	40,000,000
	Ceiling operations light (operational projector)	65,000,000
	bed head units	560,000,000
	periscope device	40,000,000
	X-ray equipment	25,000,000
	baby incubators	85,500,000
	Surgical cautery devices	112,500,000
	Anesthesia devices	12,000,000
	liquid suction devices	4,250,000
	laser devices	1,200,000,000
	Other devices and equipment	150,000,000
	the total	3,640,000,000
3	Other fixed costs	
	Transportation costs	31,000,000
	generator costs	34,350,000
	Establishment costs	15,000,000
	cash reserve	168,810,000
	Training costs	5,000,000
	the total	254,160,000
	Total fixed costs	4,064,160,000

Source: Researcher's work based on data from Red Crescent Hospital (unpublished data)

Variable Hospital Costs

Direct costs

Table 5. Variable costs of Red Crescent Hospital for the duration (2017-2020) (dinar)

No.	the details	2017	2018	2019	2020
1	consumable cost group				
	Medical material costs	45,000,000	105,500,000	98,850,000	115,000,000
	Medical oxygen costs	11,680,000	33,872,000	34,200,000	35,000,000
2	Salary and wage costs	163,367,000	490,128,000	490,128,000	490,128,000
	Bonuses and incentives	5,000,000	15,000,000	15,000,000	15,000,000
	the total	225,047,000	644,500,000	638,178,000	655,128,000

Source: Researcher's work based on data from Red Crescent Hospital (unpublished data)

Indirect costs

Table (6) Total indirect costs of Red Crescent Hospital for the duration (2017-2020) (dinar)

No.	the details	2017	2018	2019	2020
1	Public services				
	Electricity fees	45,150,000	72,935,000	77,450,000	110,418,000
	water wages	3,250,000	9,250,000	9,750,000	9,425,000
	Fuel and fuel costs	1,300,000	3,770,000	3,900,000	4,200,000
	Internet costs	680,000	6,773,000	7,000,000	7,000,000
	the total	50,380,000	92,728,000	98,100,000	131,043,000
2	maintenance costs				
	Computer maintenance costs	500,000	125,000	790,000	1,500,000
	Medical device maintenance costs	1000,000	2,900,000	2,320,000	11,500,000
	Furniture maintenance	500,000	250,000	1,700,000	7,500,000
	backup tools	150,000	5,000,000	3,190,000	7,000,000
	the total	2,150,000	8,275,000	8,000,000	27,500,000
3	rental costs				
	Building rental cost	60,000,000	180,000,000	180,000,000	180,000,000
4	Other miscellaneous costs				
	Staff accommodation costs	4,125,000	10,150,000	13,375,000	20,500,000
	Compensation and fines	100,000	1,550,000	1,100,000	9,250,000
	Transportation costs for workers and goods	3,700,000	10,730,000	11,150,000	16,000,000
	Waste transportation costs	1,600,000	4,640,000	4,850,000	11,000,000
	food costs	650,000	1,885,000	1,950,000	4,500,000
	cafeteria expenses	9,500,000	18,350,000	20,500,000	22,360,000
	Costs of cleaning materials and sanitizers	3,500,000	10,220,000	10,500,000	12,500,000
	Stationery	750,000	2,185,000	2,400,000	4,446,000
	Advertising	7,750,000	22,475,000	23,250,000	18,000,000
	the total	31,675,000	82,185,000	89,075,000	118,556,000
	Total indirect costs	234,395,000	373,408,000	375,175,000	457,099,000

Source: Researcher's work based on data from Red Crescent Hospital (unpublished data)

Total variable costs

Table (7) Total variable costs in Red Crescent Hospital for the period (2017-2020) (dinar)

Details	2017	2018	2019	2020
Total direct costs	225,047,000	644,500,000	638,178,000	655,128,000
Total indirect costs	234,395,000	373,408,000	375,175,000	457,099,000
Total	459,442,000	1,017,908,000	1,013,353,000	1,112,227,000

Source: Researcher's work based on data from Red Crescent Hospital (unpublished data)

Net Revenue

Table 8 Red Crescent Hospital net revenue for the period 2017-2020

The Details	2017	2018	2019	2020
Hospital Share	568,624,700	2,360,997,975	3,085,867,750	3,821,291,250
Total Variable Costs	459,442,000	1,017,908,000	1,013,353,000	1,112,227,000
Net Annual Revenue	109,182,700	1,343,089,975	2,072,864,750	4,936,668,250

Source: Researcher's work based on data from Red Crescent Hospital (unpublished data)

Third Research: Performance Evaluation Criteria at Red Crescent Hospital for the Period (2017-2020)

First: Value added standard

This criterion can judge the efficiency of Red Crescent Hospital in its use of available economic resources. It represents the difference between the value of the production generated by the hospital and the value of the production supplies. The value added generated by the hospital for the period (2017-2020) will be extracted as follows:

$$\text{Value Added} = \text{Total Production Value} - \text{Value of Production Supplies}$$

Table (9) Value Added to Red Crescent Hospital for the Duration (2017-2020)

Year	Total Production Value (Dinar)	Value Of Production Inputs (Dinar)	Added Value (Dinar)	Growth Rate %
2017	568,624,700	459,442,000	109,182,700	-
2018	2,360,997,975	1,017,908,000	1,343,089,975	1130.13
2019	3,085,867,750	1,013,353,000	2,072,864,750	54.34
2020	3,821,291,250	1,112,227,000	4,936,668,250	138.16

Source: Researcher's work based on data from Red Crescent Hospital (unpublished data)

Note from Table (9) that the value added by Red Crescent Hospital was good. The hospital achieved the highest value added in 2020 and reached (4,936,668) dinars. The lowest value added in 2017 was (109,182,700) dinars. The hospital also achieved varying rates of value-added growth, the highest in 2018 with a growth rate of 1130.13%. The following year fell to 54.34% (due to the exceptional conditions experienced by the governorate that year due to the demonstrations and the accompanying cutting of roads that made it difficult to reach the hospital. The same year the hospital also performed more than 200 operations for the governorate's children free of charge. Growth rates have risen to 138.16% in 2020.

The high value added achieved in the hospital year after year reflects the good performance of the Red Crescent Hospital during the study period.

Total productivity criterion

The productivity of the factors of production means combined, and is calculated according to the following formula:

$$\text{Total productivity} = \frac{\text{value of production (output)}}{\text{value of resources used (input)}}$$

Table 10. Total Productivity of Red Crescent Hospital for the Duration (2017-2020)

Year	Year total production value (Dinar)	The value of the resources used (Dinar)	Total Productivity (dinar)
2017	568,624,700	4,523,602,000	0.125702
2018	2,360,997,975	5,082,068,000	0.464574
2019	3,085,867,750	5,077,695,000	0.60773
2020	3,821,291,250	5,176,387,000	0.738216

Source: Researcher's work based on data from Red Crescent Hospital (unpublished data)

Based on table data (10), overall total productivity rates decreased during the specified period, and reached the highest rate in 2020 at 0.738126 per dinar, and the lowest rate in 2017 at 0.125702 per dinar. Their decline is a negative indicator of the hospital's low efficiency in utilizing, coordinating and operating available resources as required and transforming these various inputs into outputs.

$$\text{bed occupancy rate} = \frac{\text{Total number of hospitalized patient days in a year} * 100}{\text{Number of beds} * 365 \text{ days}}$$

The (bed occupancy rate) indicator reflects the duration of the patient's stay in the hospital. The higher the rate, it means congestion of the hospital, which is an important indicator of the hospital management to see the rate of decline and rise and compare it with the acceptable and agreed rate. The standard rate is 80% ⁽¹⁾. By means of data obtained from Red Crescent Hospital, this rate can be found, as shown in the following table:

Table 11 *Red Crescent Hospital bed occupancy rate for the duration (2017-2020)*

Year	Stay Days	Number Of Beds	Bed Occupancy Rate (%)	Standard (%)
2017	2,121	50	11.62	80
2018	10,912	50	59.79	80
2019	10,701	50	58.64	80
2020	14,600	50	80.00	80

Source: Researcher's work based on data from Red Crescent Hospital (unpublished data)

Note from the table above that the rate of occupancy of beds in the hospital in question is lower in the first three years than the standard rate, reflecting a situation of weak investment of the hospital or one of its departments during these years, In the last year, the rate rises to equal the economic standard, indicating an improvement in the hospital's investment.

Conclusions And Recommendations

First: Conclusions

- 1- The hospital performance appraisal process aims to detect the hospital's abilities to use its available resources and guide it properly towards achieving its objectives.
- 2- The value-added standard showed positive results related to the hospital's efficiency in achieving an increasing surplus value during the period of research and reached the highest value in 2020 in the amount (4,936,668,250 dinars).
- 3- The results of the research showed that the Red Crescent Hospital suffers from the low efficiency of its management of its available resources, based on the total productivity standard, which shows a decrease in overall productivity rates during the period (2017-2020), reaching the highest rate in 2020 at (0.738126) per dinar. The lowest rate in 2017 was 0.125702 per dinar.
- 4- The bed occupancy rate also showed a weakness in the performance of the Crescent Hospital, showing results below the economic standard during the early years.

Second: recommendations

- 1- Interest in evaluating the performance efficiency of Red Crescent Hospital, to know the capabilities and potential of the hospital and to detect the extent to which performance is constantly evolving, by developing periodic programmers for performance evaluation and follow-up, and by using the indicators adopted in the study.
- 2- Identify the reasons behind the indicators and benchmarks that showed negative results in assessing the performance efficiency of Red Crescent Hospital compared to acceptable rates and develop appropriate solutions for them to enhance the results of those indicators.
- 3- Establishing an efficient database in the hospital through which data can be provided to calculate the criteria and indicators set out in the research.
- 4- Emphasize the periodic evaluation of the hospital's performance in various economic, financial and health aspects, using indicators to evaluate the efficiency of performance in hospitals.

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