

# Using (ABC) Method Based on Cost Accounting System to Support Quality Service and Competitive Advantage

**Rehab Hussein Jawad<sup>a</sup>, Abdulwahab Razzaq ALwan AL-Yasar<sup>b</sup>, Amel Abed Mohammed Ali<sup>c</sup>,** <sup>a</sup>University of Babylon Department of environment management, <sup>b</sup>College of Economics & administration university of Babylon,Iraq, <sup>c</sup>Collage of Administration and Economics university of Babylon,Iraq, Email: [Rh.aa880@yahoo.com](mailto:Rh.aa880@yahoo.com),  
[Bus.abdulwahab.r@uobabylon.edu.iq](mailto:Bus.abdulwahab.r@uobabylon.edu.iq), [bus.amel.abed@uobabylon.edu.iq](mailto:bus.amel.abed@uobabylon.edu.iq)

The Study aims to assist private hospitals operating in Iraq to use modern accounting means and methods to determine the costs spent during each stage of the outpatient services, and thus has been the definition of the advantages of the system costs (ABC) and the characteristics of the institutions working to help identify costs at every stage of the provision of the service, and to provide a cost-accounting records accounting of all costs in each stage and then be deported to record the main costs (gross). It is needless to say that the study conclusions regarding the costs of each stage of provision of health services and the extent of contribution to the total revenue will help in scientific planning to exploit the optimal utilization of resources, leading to cost reduction. The use of the system (ABC) provides all the information required on the size of the contingency fund as well as to what extent contribution to revenue has been made and any allocation process in a scientific manner. One of the most important recommendations is that the central government support investment in the area of health through the provision of facilities and financial support of the payment of 15% (contribution to pensions) for workers in these institutions. Further, that these hospitals submit their offers to all beneficiaries affected by the work of the hospital health insurance and that these offers are compensated for the patient's health status, costs and planned in order to achieve quality.

## **Introduction**

Private hospitals operating in Iraq in general and Babylon in particular have become effective in the field of providing health services after 2003 due to several factors, the most important of which is the low number of government hospitals and the continuous increase in the population. Private hospitals have become increasingly prevalent, especially in recent years, which has led to competition between these hospitals for the provision of the best health services and costs commensurate with the size of those services. Most private hospitals are in the same condition as other profit-making projects for the purpose of sustainability, continuity and expansion of their activities. However, hospitals enjoy privacy from the rest of the business establishment. They do not produce tangible goods and do not maintain stock and staff working directly with service consumers (Atkinson, 2007, p. 13).

Therefore, a number of elements must be investigated in order to reduce costs and thus increase profitability, and for this, the Study tries to introduce the hospitals cost accounting system (ABC) in order to help them reduce costs and plan to exploit their resources as to ensure that they continue to provide services and profit margins commensurate with future expansion while maintaining one of the most important objectives of health institutions: to provide health services at the lowest possible cost.

Therefore, the Study was divided into four topics, the first one aims and the problem and the hypothesis of the Study, and the second section deals with the definition of cost accounting system based on activities and identification of the advantages it provides to all institutions, and the third section deals with the identification of institutions sample Study and sources of funds and accounting systems used and the fourth Study conclusions And Study recommendations.

## **Study Methodology**

### ***Study Problem***

The problem of Study is the inadequacy of the current cost systems in the distribution of costs and the failure of the departments of health institutions to apply a cost accounting system based on activities to achieve the lowest cost resulting from the provision of services at low cost and best quality

### ***The importance of the Study***

Hospitals are the main pillar of the country's infrastructure through its role in providing health services to the community and all developed countries are concerned with the health aspect because it is one of the most important characteristics of governments that provide services to citizens as evidenced by the new US health care law. The importance of the Study stems from The role played by the activity based costing system in assisting these institutions in good

planning to exploit their resources in order to achieve quality in the light of modern accounting methods.

### ***Study Objectives***

The Study aims to help private hospitals operating in Iraq to use modern accounting methods to determine expenditure during each stage of providing services to patients in order to achieve quality and gain customer satisfaction (Margaret-Anne and G. 2018).

### ***Study hypothesis***

The Study assumes that the application of the cost system (ABC) helps health institutions to determine the cost of services provided at all stages of service delivery and identify mechanisms to reduce those costs, which supports quality and achieves competitive advantage.

### ***Sources of information gathering***

To enrich the theoretical aspect, the researchers relied on available references in Arabic and foreign languages such as books, theses and periodicals in addition to some official documents, and field visits to the sample hospitals.

### ***Activity - based cost accounting system***

The activity-based cost accounting system (ABC) has emerged to address the shortcomings of traditional methods of allocating and distributing indirect costs and to develop the allocation of resources available to assist decision-making. The collection of the costs of each activity separately and the load of products or services based on the volume of consumption of these activities, represents the best way to improve or develop other systems of stages or orders (Horngren, et.al., 1997, p.107) This system is based on a new theory designed to address the indirect costs that represent the bulk of the total costs, through the establishment of a system (ABC) which employs new concepts that clarify the ways to track non-obvious costs not related directly to the product or service.

The main objective of this system is to identify the causes of cost to facilitate the linking of costs to the product or service, and then to link the costs of activities and the final product, whether units of products or services, and thus the use of activities as a basis for the distribution of costs is more objective (Helles, 2007, 217-218).

### ***The concept of ABC system***

The activity-based costing system is defined as: a system that corrects other cost accounting systems by focusing on individual activities and considering them as the primary cost location (Horngren, 2006, p144). Activities are tasks, events or business units that are directly related to the cost issue (Zahir, 2002: 190). This consists of a two-step procedure for allocating indirect costs to the first product, namely determining the necessary activities and allocating indirect costs to them based on the resources used, that is, the activity-based costing system is the process of allocating direct and indirect fixed costs to the product.

### ***Elements of the System (ABC)***

All systems are based on elements or components, as is the case with the ABC system.

- 1- Resources : They represent the economic elements that are directed to the performance of the activity, and are considered a source of cost that occurs when using these resources, so they are considered factors of production that are used by the activity to generate the outputs of this activity and include resources (materials, human factor (work) Technology, facilities or services purchased outside the facility.
- 2- Activities: The philosophy of activity-based cost accounting system is based on the fact that all the resources available to the hospital are used for the purpose of carrying out various activities and therefore must distinguish between the many types of these activities and includes three main types:

The First Type: Activities directly related to the units: These activities are produced as a result of the provision of services and are directly proportional to the size of the services provided and is represented by direct materials (medicines, consumables and wages) for these activities.

The Second Type: Activities related to a group of units: the costs resulting from the provision of services to a group of patients is the preparation of diagnostic tools and diagnosis to start the process of clinical examination and printing and publication of hospital definitions for the purpose of introducing the hospital and the services it provides, and these costs are common costs for all patients. The number of patients increased the costs associated with this activity.

The Third Type: Activities related to production (patients) in general: It is the costs spent to support and equip a particular service or services regardless of the number of units (patients) to be served, such as the cost of evaluation of the services provided and their conformity with the standard specifications, which increases with the increase in the number of services provided by the hospital.

If the cost accounting system (ABC) plays an active role in the process of allocating resources to related activities, the allocation process is one of the most important operations carried out by the system.

- 3- Outputs: Outputs are the cost units that consume different activity services. These units include products and services the costs of activities and the different outputs are linked through the use of the causes of activity costs.
- 4- Causes of cost of activities: The cause or determinant of the cost is the factor that leads to the occurrence of the cost, and is usually the main cause of the level or volume of activity and analysis deals with determining the cause of the cost, and for purposes of measuring the cost of products must distinguish between the cost causes of the first stage in the cost-loading cycle These are the reasons for the use of resources by activity centers (operating orders, number of examiners, number of kilowatt hours used). For activities on outputs, the cost causer of this type is the key factor in the formation of cost complexes, where each complex has one causal costs. However, in general, the causes of cost can be divided into two basic types

Type I: Operational etiology

This type of etiology focuses on the number of times the activity is performed.

Type II etiology : Time etiology: This etiology is concerned with the time it takes for the activity required to produce a particular product.

- 5- Activity cost complexes: A group of monolithic works that perform within the unit of activity to achieve a specific goal and is the link between the resources of the facility and the final products, as these activities are consuming the resources of the enterprise in order to achieve the final product of goods and services.

***Factors that encouraged the shift towards costing by activities:***

There are many factors that encouraged and contributed to the transformation of the ABC system, the most important of which are: (Al-Mishal, 2005, 53)

1. Industrial development and the use of technology, which was represented in automation, which led to the organization of the production cycle based on logical steps arranged and not according to the processing and organization of individuals.
2. Indirect industrial costs have increased and direct wage costs have fallen sharply due to the multiplicity of products requiring the emergence of new production functions such as the re-engineering of production processes, study and development, and continuous training,

which in turn has led to indirect costs exceeding 50% of the total cost, while wages have decreased Direct to 5-10%.

3. The emergence of intense competition both in the domestic market and at the level of global markets, imposed on companies the need to work to reduce the cost through the multiplicity and diversity of products and the search for new markets for their products while maintaining high quality.
4. Cost accounting is no longer confined to pricing commodity inventories, but has also developed new objectives through support for management decisions.
5. From the above we can say that one of the most important factors that helped in the transition towards the system (ABC) is the increase in costs indirect resource scarcity and increased competition in the business market.

### ***Benefits Cost System (ABC)***

- 1- The activity-based costing system provides accurate information on how to use the resources associated with the various activities, and through the accuracy of this information a number of benefits are realized (Dergham, 2005: pp. 679-725) .
- 2- The effectiveness of the control role of the system (ABC) compared to the traditional cost system for the allocation of indirect costs now this system is based on the control of activities before the end of the production process or the provision of services, which leads to avoid deviations first-hand.
- 3- The effectiveness of the control role of the system (ABC) compared to the traditional cost system for the allocation of indirect costs now this system is based on the control of activities before the end of the production process or the provision of services, which leads to avoid deviations first-hand.
- 4- The effectiveness of the control role of the system (ABC) compared to the traditional cost system for the allocation of indirect costs now this system is based on the control of activities before the end of the production process or the provision of services, which avoids deviations first.
- 5- Effective use of the principle of interview by not allocating costs for periods prior to current costs such as development costs.
- 6- Help reduce costs by reducing the time and effort required to carry out the activity, selecting low-cost activities, and eliminating high-cost and unnecessary activities.
- 7- The ABC system provides a set of non-financial performance measures through nonfinancial indicators to measure the causes of cost. These measures are represented by time and effort.
- 8- ABC helps to prepare budgets as a tool for planning, monitoring and evaluating performance

- 9- The ABC system contributes clearly and effectively to pricing decisions, as the ABC system proves that there are costs that are not related to the volume of production but to the variety of products.

Through the advantages above it can be seen that this system is effective for all service and productive business sectors as it provides information to the internal auditor and management about the costs spent at each stage of production and through financial and non-financial measures, this system helps to make decisions related to pricing and preparation of budgets

### ***Objectives of the cost system (ABC)***

Each system has a set of objectives that distinguish it from other systems and as a result of the rapid developments in the various business sectors and the increasing interest in achieving a market share of these institutions, most of these institutions resort to the use of cost-based system of activities because of the advantages it offers them to achieve a set of objectives, namely (Al-Khazraji, 1998, 39-40)

- 1- ABC system provides a fair measurement of the indirect industrial costs based on the causal relationship of these costs and not on the basis of the size of production, and this helps to make fair administrative decisions related to the activity and associated production, ie, justice and elimination of randomness in the distribution of indirect costs between Different products.
- 2- All institutions are seeking to reduce costs and the ABC method helps them to achieve this goal by accurately identifying activities that add value.
- 3- Identify the activities causing costs and control and control and this is why the effectiveness of control increased, which led to the development of the work of departments within the facility and the work of the enterprise as a whole, by providing a clear picture of the management of the establishment of the activities causing costs and then know the share of the product of each activity separately.
- 4- The use of the method (ABC) contributed to the analysis of the activities of the facility and determine the cost guidelines, which helped to find accurate criteria for evaluating the performance of employees as well as the importance of the method in the financial evaluation of activities for the purpose of determining the cost of the product with the required accuracy.
- 5- The ABC method aims at finding methods and methods for measuring indirect industrial costs. It may also include marketing and administrative costs if the necessary capabilities are available to analyze them.
- 6- ABC system helped management to make decisions as a result of providing more accurate, efficient and meaningful data, which made these decisions achieve the objectives of the enterprise, whether administrative / productive decisions, especially associated with the

business long-term, provide useful information to management in decision-making and determine Reasons for high costs.

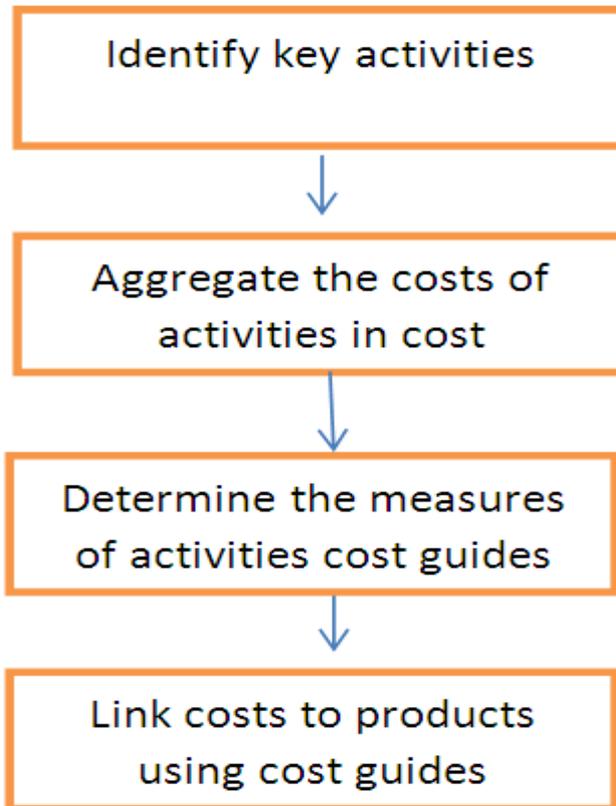
Steps to implement the ABC system in health institutions:

The application of the cost accounting system is no different from what it is in another accounting system, following the same procedures as the design of any accounting system, the application of the system (ABC) in the health facility requires an analysis of hospital activities (Udpa, 2001, p.121). Analysis and application of activity-based cost accounting systems entails the following four key steps (Druey.2005,p.154).

- 1- Determination of activities:** There are many activities that are practiced inside the hospitals and in order for the system to be really specific to the activities that consume materials, so the main activities are determined by identifying the nature of work in all sections and to identify the progress of work in each section and materials consumed in each department (Deakin, 1994, p.24) and all the activities within the hospital were large, the designer had to group these activities into major and sub-groups in order to be able to enumerate all major and sub-activities.
- 2- Determine the cost of the activity:** After determining the activities carried out by the hospital, the costs of resources are allocated within a specified period in order to identify the costs incurred by the hospital to carry out various activities such as medicines, laboratory materials, examinations and expenses to feed patients and wages of service workers for rooms, electricity and water and the design of the system and to identify the cause and cause of those costs in order to distribute those expenses to activities within the hospital.
- 3- Determine the cause of the cost of each activity:** In order to allocate costs to different activities must first determine the causes of cost (Cost Driver), which is a way of linking the cost of activity and outputs that is a quantitative output.
- 4- Determine the cause of the cost of each activity:** In order to allocate costs to different activities must first determine the causes of cost (Cost Driver), which is a way to link the cost of activity and outputs, quantitative output.
- 5- Allocation of costs of activities:** At this stage is determined the proportion of loading from the cost directors to the final output, and the share of the final product of the total costs are determined according to each stage of production.

This is represented is Figure 1 below.

**Figure 1.** ABC System Implementation Steps



Source) Jiambalvo,2000,p.169(

### ***Determinants of the activity - based cost accounting system***

Despite all the advantages related to the use of ABC system, there are limitations that can be represented by: (Hudaib, 2009, 72)

- 1- The main disadvantage of the activity-based cost accounting system is the high cost of its implementation.
- 2- It encourages the allocation of non-production costs.
- 3- Although this system for the allocation of costs, there are still some costs that are not allocated to any of the activities that are collected at the level of facilities and ultimately choose a specific basis for the distribution of these costs.
- 4- Although this system for the allocation of costs, there are still some costs that are not allocated to any of the activities that are collected at the level of facilities and ultimately choose a specific basis for the distribution of these costs.
- 5- The data provided by this system is only appropriate if the costs can be combined with homogeneous activities.

These determinants and in the light of developments in the field of information technology and the large number of manpower and scarcity of resources, in addition to the fierce competition in all areas of the various business sector, the researcher believes that the service and productive institutions apply the cost accounting system (ABC) .

### ***Requirements for the Application of Cost Based Accounting System***

Each system has special requirements for its application in a particular organization. The systems used depend on the nature of the activity, the objectives of the facility and the environment in which it operates, and the regulations, instructions and laws governing the work in that facility (Cooper,1991,p196).

- 1- An accounting system that provides the data necessary to measure and determine the relationship between cost and its causes.
- 2- Change in the industrial environment as the use of technical devices increased, which led to an increase in the proportion of indirect costs.
- 3- Diversity of production and increase the number of sections supporting the production and decrease in product prices
- 4- Increase the intensity of market competition, which led to the trend to reduce costs and improve quality.
- 5- Differences in the volume of materials produced
- 6- Shared costs represent a large proportion of the total costs of the enterprise.

### ***The third topic Implementation of the cost-based system of activities in private hospitals***

Hospitals operate in the provision of services and during the provision of this service incurs a set of costs for the provision of these services and these costs are as follows:

- 1- The cost of health workers, including doctors and their assistants, administrators and technicians.
- 2- The cost of medical materials
- 3- The cost of non-medical services (such as water and electricity costs and heating and cooling costs and maintenance costs of equipment and other variable costs associated with the activity).
- 4- The cost of non-medical services (such as water and electricity costs and heating and cooling costs and maintenance costs of equipment and other variable costs associated with the activity).

First: Identify the Study sample hospitals

The private hospitals operating in Diwaniyah Governorate are three hospitals (Babylon, Al-Hayat, Al-Salam). It is worth mentioning that during the examination of the records of these hospitals and interviews with staff, patients, accounting staff and auditors' offices that check the data of these hospitals, it became clear that the accounting system used in these hospitals is a traditional accounting system that only records the arrests of returnees and the process of payment to the staff working in the hospital and pay for the purchase of materials related to the activity of the hospital, the services provided by these hospitals are performing major surgeries. There are no future plans to encourage patients to conduct tests in this hospital such as the announcement of the medical services provided and the cost of this service as well as to provide offers for health insurance for individuals is one of the most important weaknesses within private health institutions.

In order to help these hospitals implement an effective accounting system that contributes and helps in future planning and development to increase the capacity of these hospitals to provide services and increase revenues, the researcher used the features of the activity-based cost accounting system to help these hospitals to utilize their resources effectively and efficiently. In the absence of an electronic accounting or administrative information system, a manual record format containing information on the costs of each stage of service delivery to the beneficiaries was abbreviated.

### ***Second: Application of Costs System (ABC)***

By identifying the accounting system used in these hospitals and knowing the steps of the application of the cost system (ABC), the researcher proposed the application of the system (ABC) to help these hospitals to maximize their revenues and help them to do their work better and effectively compete in the health services sector. A complete set of logbooks in which the costs of third parties are grouped directly through the inventory of those costs at each stage of providing services to patients was made. In order for this system to be effective, the costs of each activity must be recorded separately and then collected in the main cost record. Yum health services following:

#### ***Preliminary examination costs***

The first stage consists of routine examination and the second stage is diagnosis and treatment. Most private hospitals in Diwaniyah do not have competition in providing routine examination services. The Researcher proposes that hospitals operating in Iraq generally provide medical services as they are in developed countries. The recent government of raising medical fees in government hospitals from examination, treatment, analysis, etc., can help private hospitals to compete effectively.

Most of the reviewers do not have confidence in the routine examination procedures of government hospitals, especially in health centers. Therefore, based on the above, these hospitals can determine the specific wages and suitable for patients and must determine the cost of the examination only without taking into account other costs are determined as follows:

***The cost of the initial examination = monthly fixed costs + the number of monthly returnees (planned) / 30 days***

Through this equation can determine the examination fees for the auditors, the number of auditors planned Huh guess the management of the hospital for the number of annual auditors and divided the number by 12 months in order to be fixed examination costs for a year, the monthly fixed costs are (salaries, wages and expenses of water and electricity and any costs other fixed fees related to direct inspection)

#### ***Costs related to laboratory tests and analyzes***

Most private hospitals do not have sophisticated equipment, as is the case in government hospitals or specialized laboratories operating in the governorate. However, the cost of laboratory tests and analyses is more than in private laboratories. Therefore, the Researcher suggested that the costs of the examination should be in the real cost of raw materials with the addition of a profit margin. This margin is used to pay the wages of workers with a percentage of future expansion. The cost of these real tests is calculated with the addition of a profit margin for future expansion according to the following formula:

***Cost of tests = (actual cost of laboratory materials + costs of transport and sterilization of laboratory waste) / number of planned auditors***

- 1- In order for hospitals to maintain the sustainability of their work and development for the future and to ensure that laboratory tests are good, it must add a cost on laboratory wages to support the hospital with modern laboratory equipment, that this rate varies from hospital to hospital according to future plans drawn up by the Department for the future, but the Researcher suggests that this percentage exceeds 5%.

#### ***Costs related to inpatient patients***

The medical services represented by the salaries of the doctor, assistants and laboratory materials. Non-medical services provided to patients who fall ill from water, electricity and cleaning fees, and are calculated as follows:

***Costs for inpatient patients = (water and electricity charges for the specified monthly rooms + monthly food cost) / 30 days operational costs***

The cost of the operating theater for each patient is calculated separately from the salaries of doctors, assistants, devices and equipment that are used for one time, in addition to all costs related to the operation, and charges for water, electricity, cleaning fees and other monthly services and calculated according to the following formula:

***Operation costs = Wages of doctors and assistants + costs of other medical materials + (wages of workers, electricity, water and other costs recurrent)***

***Treatment costs are calculated according to the following fair values***

***Cost of treatment for patients = actual cost of the drug + (storage costs) / 30***

***Third: Fixed Costs: These costs include***

- 1- Salaries of employees (doctors, assistants, service and maintenance workers) are distributed equally to all patients and according to the proportion of each patient's costs from other costs.
- 2- Electricity, water and other costs: These are the costs that are spent on the hospital in general and are charged to patients according to the percentage of each patient's costs.
- 3- Depreciation: includes the extinction of buildings, machinery, equipment and devices, and is estimated by the straight-line method and is among the fixed costs.

Using the above, sub-records can be compiled containing all the paragraphs above and then grouped into two main records called the records of cost accounting according to the system (ABC) and as follow in Table 1:

**Table 1:** Represents the cost accounting record of the patient

Total costs College for Patients	Total fixed costs	Fixed costs				Total variable costs	Patient Cost(			
		Salaries	Extinction	Electricity	Water		Other costs	Treatment costs	Laboratory costs	Costs Examination

**Table prepared by the Researcher**

**Table 2:** Represents the record of cost accounting for the patient lying

Total costs College for inpatient patients				Total fixed costs		Fixed costs		Total variable costs		
	Salaries	Extinction	electro	Water		Operation Hall	Other costs	Treatment costs	Laboratory costs	Inspection costs

Table prepared by the Researcher

He then transfers the total amounts to the hospital's approved expense register

**Table 3:** Represents the total cost accounting record

Total costs during the period	Extinction	Total costs Fixed	Total costs Changing patients	Total costs Changing patients Reviewers	Date

Table prepared by the Researcher

Through these records, the costs of each stage of providing services to the patients can be determined. After determining the costs, the amount relevant to each patient can be determined. Accordingly, the service fees can be calculated taking into account the addition of a specific profit margin in advance to be distributed to the auditors. Experienced accounting staff, who imposes additional costs on hospitals, so government support for these hospitals, even for a limited period not exceeding the first five years of work in Rai, may contribute effectively to support this sector.

The aim of adding a profit margin set by the management of health institutions is to face the expansion plans for the future taking into consideration that there is nothing to prevent the existence of a profit for investors for the purpose of encouraging investment in one of the most important sectors affecting the lives of citizens. The above hypothesis can be proved in that the implementation of the activity-based costing system helps health institutions to know the cost of services provided at all stages of service delivery and their respective potential revenue.

***The fourth topic: Conclusions and recommendations***

***First: Conclusions***

- 1- The use of activity-based cost accounting helps hospitals to know the true cost of all auditors.
- 2- Keeping records of cost accounting can help management in making decisions and planning for the future.
- 3- The system contributes to the recognition of the cost of the patient at each stage of treatment, which provides the Department of information to help them to determine the mechanisms followed by in reducing the cost of that stage.
- 4- The salaries of the employees represent the bulk of the costs in these hospitals.
- 5- Iraq, including its human resources and educated cadres and capital eligible for investment in all sectors.
- 6- Knowing the costs of each stage of the provision of health services and the extent of their contribution to total revenues helps in scientific planning to optimize the use of resources, which leads to reduce costs.
- 7- The use of the ABC system provides all institutions with the required information on the volume of expenses as well as the extent of their contribution to the collection of revenues, an allocation process in a scientific and thoughtful manner.

***Recommendations***

- 1- Hospitals should use the necessary accounting expertise to keep records of cost accounting.
- 2- The Central Government should support investment in the health field through the provision of facilities and financial support, to the value of 15% (pension contribution) to workers in these institutions.
- 3- The supervisory bodies of these hospitals should maintain records of cost accounting in order to inventory costs and prepare plans to reduce them.
- 4- Hospitals should submit their offers to all beneficiaries encouraging them to work through health insurance with the hospital, provided that these offers are commensurate with the patient's health and planned costs.
- 5- The government has a duty to support private hospitals to recruit experienced and skilled cadres to provide service to beneficiaries.
- 6- The supervisory authorities of these hospitals should conduct a study on keeping records of cost accounting in order to inventory costs and prepare plans to reduce them.
- 7- In order to support the service and production business sectors, the government should prepare investment plans in the health service sector through partnership with the private sector to encourage private investment

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