

# **Main Economic Evaluation of Clinical Outsourcing in MoH Hospitals in Turkey**

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*Purpose of this study is to analyze cost impact of outsourcing decisions in selected digital imaging procedures, namely Magnetic Resonance Imaging-MRI. MRI is often considered expensive diagnostic procedures, (Saini et al, 2001). This study aimed to determine the cost of performing different types MRI procedures in MoH hospitals, and to compare them to prices offered by vendors. This study findings are expected to guide policy development and evaluation.*

## **INTRODUCTION**

In year of 2003 Ministry of Health (MoH) initiated new program titled as “Health Transformation Project”. This program aimed at restructuring organization and functioning of Turkish health care system. Similar to other countries’ experiences (Van, 1996), the purpose of this reform, in Turkey, is to make resource allocation in health care more efficient, more innovative and more responsive to consumers’ preferences while maintaining equity. Consequently health transformation project has created radical changes in the organization, financing and provision of health services. Health Transformation Project has also stimulated competition among health care organizations and forced health care managers to focus on efficiency and quality in the provision of health services.

Assuring and improving economic performance of healthcare organization is vital in today's world of reducing profit margins and strong competition. To survive in the competitive environment, Turkish hospital managers need to develop new strategies that enable them to quickly respond to changing and challenging situations. Recently outsourcing has become the most preferred strategic option for Turkish hospital managers to overcome performance problems.

Outsourcing is transferring services or operating functions that are traditionally performed internally to a third-party service provider and controlling the sourcing through contract and partnership management (Roberts, 2001). Outsourcing offers a wide range benefits for health care organizations including efficiency improvements or cost savings (McIvor, 2008), quality improvement (Triulzi, 1997), patient and personnel satisfaction (Magnezi et al, 2006, Ngeo, 1998, Ecerkale, 2006) and development of managerial capacity necessary to focus on core services and resources (Belcourt, 2006, Shaffer, 2000).

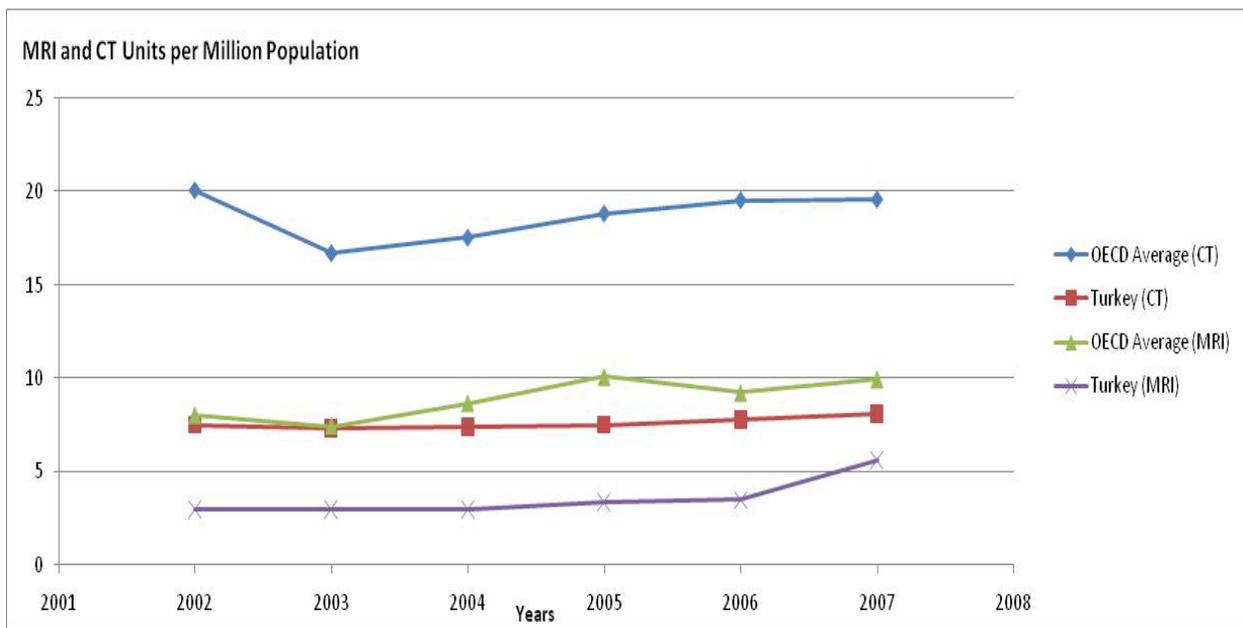
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procedures in MoH hospitals, and to compare them to prices offered by vendors. This study findings are expected to guide policy development and evaluation.

### MRI UNITS IN TURKEY

Magnetic resonance imaging (MRI) reached a technologic level sufficient to begin clinical imaging procedures in early 1982. Hundreds of reports have now been written on various aspects of clinical use describing the possible roles for this exciting new technology in patient care (Evens, Jost, Evens, 1985). In Turkey, as shown in Figure 1, MRI and CT units per million populations is lower than OECD countries. Therefore MoH, have stimulated outsourcing of MRI and CT initiative in 2003, for the purpose of satisfying clinical needs of patients as well as containing health care costs.

**FIGURE 1**



### METHOD

#### Setting

This research completed in the research and development hospital under Ministry of Health. This hospital serves MRI or clients can go to another hospital because of the demand excess. This hospital is public hospital and departments of MRI has a certain period of time, which is 8 hours per day because of that MRI service is not enough.

All of the hospitals, in Turkey, have a price list that prepared by Social Security Institution (SSI). Social Security Institution, in different MRI transactions, has a straight price, which is one price list for all hospitals that because of the, in this research, all MRI transactions have accepted it same.

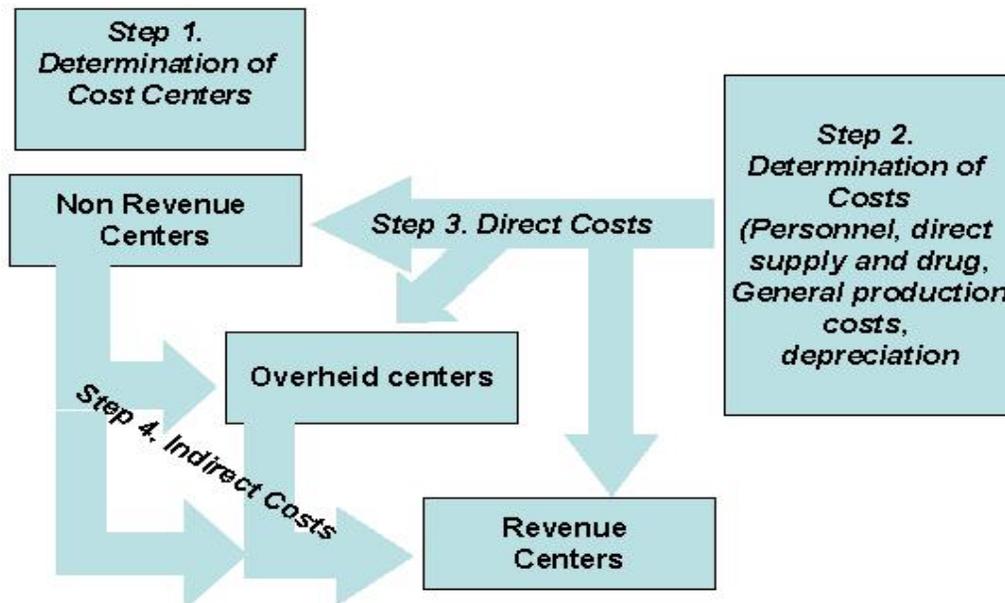
All of the financial data and medical information have provided from hospitals. All of the data have reviewed and updated.

#### Costing Methodology

Several methods of cost allocation are used in healthcare organizations. These are: (1) Direct apportionment, (2) Step-down apportionment, and (3) Double apportionment. Step-down apportionment

involves a two-time allocation and takes into account the disadvantage of direct apportionment. It involves a one-time allocation of all costs from cost centers of departments that do not generate revenue to other cost centers of departments that do not generate revenue before a one-time allocation of all costs to cost centers of departments that do generate revenue (Nowicki, 2008). Step Down Costing Method was illustrated in Figure 2.

**FIGURE 2  
STEP DOWN COSTING METHODOLOGY**



In the step down costing methodology, first step is to identification of cost centers. Cost centers are generally classified as:

1. Non revenue centers
2. Overhead centers
3. Revenue centers

*Non-revenue centers* are nonclinical support areas that provide nonmedical services to all personnel and departments. They serve the management and operational needs of the facility.

*Overhead centers* comprise administrative departments that serve the management and operational needs of the hospital. These departments perform, accounting, billing, and other managerial and administrative services.

*Revenue centers* also called *profit centers*, produce services and procedures provided to patients. They are the final collection point for costs relating to the patient's treatment. In the hospitals, revenue centers produce final output and elicit almost all revenue from customers and third party payers. MRI unit were regarded as revenue centers

At the second stage of step down costing, direct costs of whole departments (cost centers) are determined. *Direct costs* are those that relate to a department's operations and can be linked to specific departments. Types of costs are briefly explained in Table 1.

**TABLE 1  
COST TYPES**

<b>Cost Types</b>	<b>Description</b>
<b>Recurrent Costs</b>	
<b>Personnel Cost</b>	It includes gross wages and salaries of the hospital staff, fringe benefits provided (transportation, overtime, training, "GİYİM YARDIMI ETC) and cost of performance -based incentives (called as revolving fund payments).
<b>General Business and Administrative Cost</b>	It includes expenditures for electricity, water, communication bills (post office, telephone) and stationary materials.
<b>Pharmacy Costs</b>	These costs included the costs of drugs consumed.
<b>Medical Supplies Cost</b>	This cost comprised all medical consumables used in the period.
<b>Fixed Assets Costs</b>	
<b>Cost of Depreciation: Building</b>	It refers the total depreciation cost of area allocated for the MRI unit. Area of MRI Unit was multiplied by the cost per meter square to calculate the total replacement value. The cost per meter squared was obtained from Ministry of Finance. Cost of building depreciation was calculated as follow: Building Depreciation= Area of Unit x Cost per meter square / 20 years.
<b>Cost of Depreciation: Medical Devices and Equipment</b>	These included depreciation costs of MRI equipment. This costs were calculated as follow: Annual Depreciation Cost= (Purchased Cost Of Equipment / economic life). Economic life of medical equipment has been generally accepted as 10 years in Turkey.
<b>Equipment cost</b>	It includes cost of general equipment and equipment in the various rooms (waiting room, consulting room etc.) such as benches, tables, chairs etc.

Costs were categorized as direct costs and indirect costs. Direct cost, are those that directly allocated to a specific unit (e.g. MRI unit). On the other hand, indirect costs, accumulated into other units (non revenue centers) that serve whole hospital, are allocated to specific unit by using costs drivers.

**TABLE 2  
ALLOCATION CRITERIA'S BY SERVICES OR DEPARTMENTS**

<b>NON REVENUE CENTERS</b>	<b>ALLOCATION CRITERIA</b>
Food Service	Number of Meals Served
Laundry	Number of Personnel
Maintenance	Fixed asset Allocation Percentages
Heating Center	Area (m <sup>2</sup> ), Number of Radiators
Morgue	Number of Deaths
Communications Expenditures	Number of Personnel
Transportation Services	Transportation Request Forms and Expert Opinion
Medical Records and Archives	Number of Admissions
Central Admission	Number of Admissions
Housekeeping	Area (m <sup>2</sup> )

## FINDINGS

In table 3 fixed and variable costs of MRI unit are presented. As shown in table 3, fixed costs make up the 2/3 of the total cost of MRI unit. Because MRI unit are highly technology unit, fixed asset depreciation cost is the most important cost item.

**TABLE 3**  
**COST STRUCTURE OF MRI UNIT (Q = 6452)**

<b>Cost Categories</b>	<b>Explanation</b>	<b>Amount</b>
<b>Fixed costs</b>	Personnel Cost (Includes Fringe Benefits)	66,378
	Cost of Maintenance Contract	80,000
	Depreciation Cost of Building	934
	Depreciation Cost of Medical Devices and Other Equipments	125,000
	<b>Indirect Costs</b>	
	Food Service	2,210
	Laundry	625
	Maintenance	10,800
	Heating Center	2,200
	Morgue	0
	Communications Expenditures	145
	Transportation Services	0
	Medical Records and Archives	425
	Central Admission	0
	Housekeeping	3,200
	<b>Total Fixed Costs</b>	<b>291,917</b>
<b>Variable Costs</b>	Electricity and Water Costs	1,203
	Medical Supplies Costs (Include Tube Cost = 75.000 TL).	120,500
	<b>Total Variable Costs</b>	<b>121,703</b>
<b>Total Costs</b>		<b>413,620</b>

Using cost information provided in Table we can easily write cost function of MRI Unit

$$TC = FC + VC$$

Total variable cost can be rewritten as

$$VC = vQ$$

Where “v” represents unit variable cost. Finally when  $Q = 6452$  procedure) we can write cost function of MRI unit as follow

$$TC = 219,917 + 18.9Q$$

In this hospital, who has MRI service from outside of the hospital, charged 46 TL per transaction. Hospital outsourcing service cost function:

$$TC_{\text{outsourcing}} = 46 Q \text{ it can be write in this from.}$$

It can be calculating breakeven point that compare to two cost functions.

$$\text{Break Even Point} = 219,917 / (46 - 18,9) = 10.757 \text{ procedures.}$$

If hospital administration's MRI demands less than 10757, Outsourcing MRI service will be the best option. On the other hand, if annually quantity demand of MRI service is more than 10757, this hospital will server the MRI service that it will be profit option for hospital.

## DISCUSSION

Outsourcing is the most recent business strategy adopted in response to problems of efficiency and effectiveness faced by the Turkish health care system. During the last decade, a general trend towards outsourcing has appeared in the Turkish health care system. In the early 1990s, the MoH hospitals began to outsource some non-core services such as catering and security. Although outsourcing was primarily preferred to obtain noncore services, it has been extended to both administrative services and core services. Today, outsourcing is being implemented by almost all health care facilities of all sizes. As outsourcing expands, costs and outcomes of outsourcing practices are attracting great attention.

The Ministry of Health hospitals outsource medical services in a rather cost-effective way. The outsourced services such as MR and CT are services with high investment costs and the level of service production should be close to the level of theoretical capacity of investment so that these services are delivered efficiently. As the amount of production is increased, the cost per service item will be decreased because the constant cost per service item will be decrease as well. Providing that demand has not reached capacity, and then outsourcing medical services seems to be a proper strategy for hospitals.

Public hospitals in Turkey, MR service provided by outsource that all this services produced by hospital or outsourcing's decisions making while more focus on cost data, hospital more concentrate of benefits to simplify of organizational chart and make it easy of administrative inspection.

Literature reviews show that the option of outsourcing has a cost-cutting effect. The study, in this context, supports this general hypothesis and proves that the strategy of outsourcing, which has been rolling out and becoming an integral strategy for hospital management in Turkey, plays a significant role in reducing costs.

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