

practices of MoH hospitals in conceptualizing a road map for many other health care organizations during the implementation stage of the Transformation in Health program.

IMPROVING PERFORMANCE OF PUBLIC SECTOR HOSPITALS: IMPACTS OF QUALITY MANAGEMENT SYSTEMS APPLICATIONS IN TURKEY

Ali Osman ÖZTÜRK*

ABSTRACT

One of the contemporary management methods adopted from the private sector and widely advocated in health care organizations over the past two decades is quality management approach. Many Turkish government hospitals have also implemented ISO 9001 quality management systems standards to improve their quality and performance since the second half of 1990s. This study examines the impacts of ISO 9001 certification efforts at Ministry of Health (MoH) hospitals. It begins with an examination of quality improvement experience in developed countries' health care services, and International Organization for Standardization (ISO). Following section offers a brief discussion on recent Turkish health care reforms. Next, an analysis of the impact of ISO 9001 quality management systems certification on quality and performance of government hospitals is offered by comparing the nine ISO certified and non-certified hospitals' performances during the pre and post certification periods. Findings of the study show that although there were no significant differences between ISO certified and non-certified MoH hospitals in terms of their performance and quality, ISO certified hospitals were able to attract more patients and doctors than non-certified hospitals during the post-certification period. In the light of these mix results, it is also discussed that there is a need for adequately designed outcome performance indicators which can be employed to measure the core quality and performance dimensions of hospitals. Finally, this study concludes that valuable lessons can be drawn from quality management systems

ÖZET

Özel sektörden kamu sektörüne adabte edilmiş yönetim metodlarından biri olan kalite yönetimi, son yirmi yılı aşkın süredir sağlık hizmeti sunan kuruluşlar tarafından da uygulanagelen bir yönetim yaklaşımıdır. Türkiye`de ise 90`lı yılların ikinci yarısından itibaren birçok kamu hastanesi kalite ve performanslarını artırmak amacıyla kalite yönetim sistemleri yaklaşımını benimsemiştir. Bu çalışma, kalite yönetim sistemleri yaklaşımını benimsemiş Sağlık Bakanlığına bağlı devlet hastanelerinin kalite ve performans değişimlerini karşılaştırmalı olarak incelemektedir. İlk olarak gelişmiş ülkelerin sağlık hizmeti sunan organizasyonlarında kaliteyi geliştirmeye dönük faaliyetleri üzerinde durulmuştur. Uluslararası Standardizasyon Organizasyonu (ISO)'nun kuruluş ve faaliyetlerine değinildikten sonra, sağlık sektöründe kalite ve performansı arttırmaya dönük faaliyetler üzerinde durulmuştur. Çalışmamız ISO sertifikası almış ve almamış olan devlet hastaneleri arasında çok ciddi bir performans farkı olmadığını, ancak özellikle sertifika sonrası daha çok hasta ve doktorun sertifika almış olan hastaneleri tercih ettiğini ortaya koymuştur. Diğer yandan, hastane kalite ve performanslarını ana boyutlarıyla ölçmemizi sağlayacak yeni indikatörlerin geliştirilmesi ve kullanılması gereği vurgulanmıştır. Son olarak, ISO belgesi almış devlet hastanelerinin kalite yönetim sistemlerini uygulamadaki tecrübe ve birikimlerinin, Sağlıkta Dönüşüm Programı'nın uygulama aşamasında diğer sağlık hizmeti sunan kuruluşlar için bir yol haritası çizilmesine büyük katkı sağlayacağını altı çizilmiştir.

I. Introduction:

Reforms in the health care sector are often stimulated by economic recession and sever fiscal problems since declining government budgets have adversely affected service delivery quality and performance in many countries around the world. One of the financial concerns in the health care sector is increasing cost of secondary mecial services

* Dr., North Carolina State University, Raleigh, NC, USA.

provided mostly by hospitals. That is why many health care policy-makers and professionals who try to design and deliver health care services under great financial pressures have started to pay considerable attention on new management techniques to improve efficiency, effectiveness and quality of public hospitals. One of the new management methods (including performance management, strategic management, benchmarking, etc.) adopted from the private sector and widely advocated in health care organizations during the last two decades is quality management practices. Harten et al. (2002) believe that there are several factors that have led hospitals to use quality management systems: the increasing complexity of health institutions and systems, a focus on efficiency and effectiveness, the pressure to reduce cost, the ongoing process of specialization and individualization, and the strengthening of the position of the client.

Turkey has been felt heavy financial, organizational, and social pressures for change in the health care system since the beginning of 1990s. However, because of the lack of sufficient political and fiscal support provided by coalition governments, two big economical crises (in 1995 and 2001), and a devastated 1998 earthquake caused delays pursuing proposed national health care policy in that period. Recently, Turkish government has undertaken a comprehensive health care reform program; "Transformation in Health". Having known that previous health care reform initiatives were come across many obstacles and not accomplished their own goals, current elected and appointed policy-makers in the Ministry of Health (MoH) ought to be aware of challenges and problems that recent health care reform efforts faced with.

At this point, Turkish health care professionals should examine the consequences of previous health care quality and performance improvement initiatives from the field in order to design and manage smooth initiatives in service delivery. Therefore, this study offers a review of the recent quality management practice, ISO 9001 certifications efforts of MoH hospitals in order to identify whether these initiatives have achieved their desired ends. To do so, this paper begins with assessing developed countries' experience in their health care service delivery. After briefly discussing Turkish health care reforms during the last decade, this study analyzes the impact of ISO 9001 quality

management systems certification on hospital services by comparing performance of nine ISO certified and non-certified public hospitals.

II. Quality and Performance Improvement Efforts in Developed Countries

Contemporary health care researchers and practitioners have focused on quality, access, and cost of health care services, while believing that quality has a stronger impact on health care access and cost. Al-Assaf (2001) emphasizes the key role of quality of health care in providing accessible services in an efficient, cost-effective and acceptable manner. He also adds that a quality service is to be customer-oriented which is achieved when the needs and expectations of the customers are met.

Various managerial reforms have been undertaken to improve the performance of health care service providers in hospital sector in developed countries (Preker, 2001). Recent surveys conducted in five developed countries showed that majority of consumers were dissatisfied with quality, availability and affordability of health care in these countries (Aiken et al. 2002).¹ In response to increasing patient expectations and dissatisfactions, governments have been in search of ensuring the safety of patients and improving quality during last two decades (Ovretveit, 2003). Nowadays, many countries have established voluntary and statutory mechanisms for periodical assessment of health care organizations to assure or improve elements of service quality (Shaw, 2001). In this section, a brief examination of developed countries' quality improvement mechanisms during past two decades is offered.

1. Accreditation and Health Care Quality: North America and Australia

Accreditation is an external activity that evaluates the overall ability of the hospital to provide quality care, and looks at facilities, staff, equipment, process and sometimes outcomes. It involves an independent body evaluating the degree of compliance by a hospital

¹ Australia, Canada, New Zealand, the United Kingdom, and the United States

with previously determined standards and, if the hospital is adequate, awarding a certificate. Accordingly, accreditation has two different but related goals. The first is to provide a guarantee that a hospital meets a defined minimum standard; the second is a developmental process in which best practice can be exchanged and promoted (McKee and Healy, 2002).

In the United States, accountability for quality has been the responsibility of the voluntary nongovernmental sector, and placed at state and local level for the most part. For instance, hospital eligibility to receive payment for Medicare patients depends on accreditation of hospitals, which is done not by the federal government but, rather through the voluntary Joint Commission on Accreditation of Health Care Organizations (JCAHO) (Ferlie and Shortell, 2001). During late 1980, JCAHO begun a gradual refocus of its process-oriented standards towards outcomes. Currently, JCAHO accredits more than 80 per cent of US hospitals. In Canada, accreditation is also voluntary under the Canadian Council n Health Facilities Accreditation, but 95 per cent of hospitals are accredited. The Australian Council on Standards is an independent body that stresses that its role is “evaluative and educative rather than inspectorial or judgmental”. It has already awarded 40 per cent of public hospitals with accreditation for one, three or five years after an on-site survey (McKee and Healy, 2002).

In addition to accreditation efforts, the US hospitals sought for better outcomes with limited resources, the health care industry was interested in the new ideas outside its field to for solutions. Therefore, continuous quality management and total quality management concepts entered into this industry in the late 1980s. The creation of the Malcolm Baldrige National Quality Award in 1987 accelerated quality movements in the US hospitals. Baldrige is a competitive award with up to a maximum of two winners, per annum, in manufacturing, service and small business categories. The set of award criteria is results-oriented and Baldrige supports a systematic approach to maintain goal alignment throughout the organization and goal-based diagnosis of the organization (Kay and Soon, 2000). Recently Health Care Criteria for Performance Excellence has been developed and used several health care organizations in the USA. Shortly, many hospitals and other health care organizations started to implement the principles of TQM and this

trend continued throughout the late 1990s. For the first time, the Malcolm Baldrige National Quality Award was given to a health sector organization, the SSSMHC in St Louis, Missouri, in 2003 (Al-Assaf, 2001; Ruiz and Simon 2004).

Nonetheless, empirical studies show that there are few organization-wide TQM programs and no strong evidence about successfully implementation in American hospitals. An American study of 67 hospitals using TQM found that patient outcomes were not significantly different compared to hospitals just starting TQM/CQI programs, while another study of 61 hospitals found that TQM programs had largely failed to address professional quality issues (Ovretveit, 2003).

2. Quality Management in European Health Care

McKee and Healy (2002) argue that hospitals in Europe have been regarded as a black box with regard to their effects on health. Moreover, they believe that today those responsible for planning and managing hospitals and for making decisions about investing in them should look inside that black box to understand the nature of challenges facing hospitals now and in the future. Accordingly, health care policy-makers and managers must assess the arguments for different hospital configurations, how best to provide high-quality health care and how to ensure that expensive hospital facilities are used optimally.

Total quality management (TQM) is accepted as an organization-wide approach and philosophy with a strategy for organization and personnel development, as well as a quality management and information structure. These aspects of TQM approach is used by the European Foundation for Quality Management (EFQM) that was officially founded in 1988 in order to support, encourage and recognize the development of effective total quality management by European companies. Regarding health care management, the EFQM approach provides a broader and more generic framework that the health care services should be considered as a whole and distinguished between structure, process and outcome quality (Nabitz, Klazinga, and Walburg, 2000).

In many European countries, the EFQM approach is used by health care organizations for self-assessment. However, only in the UK and the Netherlands established a national institute formally supporting the quality improvement practices in health care institutions. The British Quality Foundation has published and adapted the EFQM criteria for health care and the Dutch quality institute has developed specific Guidelines for Health care with are supported by the minister of health. Other European countries also have quality awards but in most cases they are not directly related to the EFQM Approach (Nabitz, Klazinga, and Walburg, 2000).

In addition to EFQM approach, ISO 9001 certification of health care organizations is another common quality management activity throughout Europe. However, not all European countries (e.g. Germany) welcomed ISO certification of health care organization because of concerns about its applicability in health care organizations during early 1990s. After recognizing that ISO certification can help to strengthen the process orientation of a health care service, many European health care organizations which subject a certain amount of competition applied and received quality management systems certification in order to prove their service quality to potential customers (Klazinga, 2000).

Ovretveit (2003) states that health care stakeholders have increasingly concerned about the quality of health services across Europe as well. Although different approaches have been used to ensure and improve quality, not all have been successful. Many hospitals adapt TQM principles in Europe, and even after ten year there is still no clear evidence about successful TQM adaptations. Unanticipated cost of investment for TQM tools, management and professional resistance towards empowering employees and teams, poor quality measurements and concentrating short-term projects in health care organizations have been indicated the major problems introducing and using TQM in Europe (Adinolfi, 2003).

This overview of developed countries' quality improvement efforts in hospital services suggest that even though developed countries have encouraged health care organizations to undertake variety of quality strategies via established organizations and awards, empirical studies show that few initiatives were found adequately successful.

3. International Organization for Standardization Standards

The International Organization for Standardization (ISO) was formed by the United Nations in 1947, but ISO is a nongovernmental organization and is not an arm of the United Nations. It is a worldwide federation of standards organizations from 135 countries that has no power to impose its standards. Standardization is a governmental function in most member countries. Therefore, almost all of member bodies, except American National Standards Institute in the US, are government organizations that have also administered and coordinated ISO certification. Its first international quality standard, ISO 9000:1987 was updated to become ISO 9000:1994 in 1994. The current revision of ISO standards occurred in December 2000. Therefore, today the family of ISO standards contains three components: ISO 9000, ISO 9001, and ISO 9004. In the family of ISO standards, only ISO 9001 can be used for certification purposes while ISO 9000 and ISO 9004 provides guidelines only.

The first component of ISO standards, ISO 9000:2000 is accepted as the logical point to start to develop a quality management system for organizations. This standard provides a very good overview of the quality management system and a comprehensive vocabulary that contains definitions of all the terms used in ISO 9001:2000 and ISO 9004:2000.

The second component of ISO standards is ISO 9001:2000. This standard details the requirements for a quality management system that can be used for certification. ISO 9001 is designed to facilitate assessment and is the standard to which organizations must demonstrate compliance if they are willing to be certified by an accredited assessment body. ISO 9001 recommends the essential elements of quality management systems, without offering particular ways to apply them. Each organization must develop its own system according to its special needs and the requirements of ISO 9001 standard. We will further examine its components in the following section.

ISO 9004:2000 is the third component of ISO standards. It has been developed to complement ISO 9001:2000 in order to guide organizations that are eager to continually improve their performance. ISO 9004 give guidance on a wider range of objectives of a quality management system

and contains helpful information for exceeding ISO 9001 requirements (ISO 9000 Quality Management, 2001).

III. ISO 9001 Standardization Efforts at Turkish Public Hospitals

1. Turkish Health Care System and Reform Initiatives

Turkish public health care organizations have a complex organizational structure. The central government in Turkey has strong legislative and executive power to coordinate and allocate all kinds of resources and to provide health care services by public hospitals. The Ministry of Health (MoH) is responsible for public health policy and services at the central level in Turkey, while provincial health directorates, accountable to MoH via provincial governors, administer health services at the local level.

The MoH runs general hospitals that provides acute care services by accepting in-patients and out-patients, some specialist hospitals (such as maternity, chest disease, children's, cardiovascular, and physiotherapy, etc.), rehabilitation centers, and few education and research hospitals. But the Social Insurance Institution hospitals, the Military hospitals, the medical schools, and the few hospitals administered by different Ministries also provide health care services for out-patients and in-patients in Turkey.

Table 1 summarizes the distribution of public hospitals in 2003 according to their institutional arrangements in the central government. The MoH is the major provider of primary and secondary health care and the only provider of preventive health services in Turkey². MoH hospitals consist of 74% of public hospital, and therefore, this study focuses on the biggest public health care provider in Turkey.

Table 1: Distribution of Public Hospitals in Turkey in 2003

Organization	Number of Hospital
Ministry of Health	668

² The Turkish Government combined SII hospitals with MoH hospitals as of January 2005 with a legislation (Legislation No.5283) in accordance with current health care reform movement: Transformation in Health aiming to establish less complex, but more accessible health care system in Turkey.

Social Insurance Institutions	121
University Hospitals	50
Ministry of Defense	42
<u>Other</u>	<u>19</u>
Total	900

Source: Ministry of Health 2003 Annual Report.

In the case of private providers of health care in Turkey, there were a few private hospitals established by ethnic minorities before the economic liberalization of the late 1980s. Since then, the government has provided substantial incentives for investment in private hospitals. As a result of rapid increase, Turkey had 83 private hospitals in 1981 and 272 in 2003 (MoH, 2003 health statistics, p. 55).³

Turkish public sector health care organizations are characterized by a hierarchical organizational structure. A chief physician assisted by a chief nurse and a hospital director heads a MoH hospital. Since the main criteria for selection of the head physician are generally length of service and reputation as doctor, rather than managerial capacity, many head physicians lack management skills. The director of the hospital is in charge of financial, technical and some personnel matters on a daily basis. All health personnel are recruited and assigned to specific hospitals centrally by MoH (World Bank, 2003a and 2003b).

The organizational mission and purpose for MoH hospitals are essentially established through legislation within current health care system. Legislation appears to be more prescriptive than enabling, and the focus of organizational thinking is more on service delivery and managing within the system rather than developing vision and mission statements, and strategic plans (World Bank, 2003b)

³ A number of well-established private hospitals offer integrated diagnostic and outpatient services and comfortable inpatient hotel facilities to attract fee-for-service patients. Most private hospitals established after the late 1990s are located in cities with large populations as Istanbul, Izmir and Ankara. Some of them prefer to build their facilities in less developed areas of these cities and provide an inexpensive and poor quality services in order to attract low income patients. However, growth of private sector hospitals has slowed since the economic crisis of 2001 (Savas et al., 2002: HiT Summary: Turkey, 2004).

In addition to previous reform initiatives undertaken in the Ministry of Health (MoH) organizations⁴, the Second Health Project was carried out in conjunction with the seventh five-year plan prepared by the State Planning Organization (covering 1996-2000).

However, it seems that these reform efforts have not provided solutions to long-lasting problems such as the significant proportion of the Turkish population without any form of social security coverage, the loss of confidence in public health services, and the concentration of one third of the hospital beds and about half of the doctors in large cities in Turkey (Savas et al. (2002). In fact, the (International Organization for Standardization) ISO 9001 certification effort of MoH hospitals can be identified the part of the second wave of reform movement during the second half of 1990s in Turkish public health care system.

More recently, the government has published plans for a “Health Transformation Program” to be implemented over the next few years and supported by another World Bank loan agreement in June 2004. This program covers deep-rooted and long-lasting health care delivery and organizational problems in Turkish public sector. The main objectives of the project are announced as extending health insurance coverage to all the Turkish population and reduce inequalities in access to health care. To do so, the program aims to focus the nine principles shown in table 2.

The objectives of Health Transformation Program promise an unprecedented change in Turkish health care system by offering a comprehensive health care reform aimed not only to reduce the central government’s direct control on health care finance and delivery, but also to establish entrepreneurial management approaches via setting autonomous health care organizations. Any of the above goals of the program has not yet implemented fully because Turkish government currently is busy with legislative and organizational arrangements. For instance, hospitals previously run by the Ministry of Labor and Social Security has been transferred to the Ministry of Health as of January

⁴ The Ministry of Health attempted to implement a national health policy and a program of health care reform between 1988 and 1993. Although the MoH and the State Planning Organization carried out a major study to identify needs and set objectives for future action with sound achievable targets, the reform program was interrupted by a change of government in 1993.

2005 in order to follow “division of power” principle of the reform program. By doing this arrangement, each ministry will focus on specific health care services: while Social Insurance Institution will mainly coordinate financial issues related with health care and pension system, the Ministry of Health will be responsible for planning, coordinating, and delivering health care services.

Table 2: Principles of Health Transformation Program

Human Centrim	Planning, providing, and delivering health care services in accordance with individual’s need, demand, and hope.
Sustainability	Identifying conditions and resources of the health care sector before creating the new health care delivery system capable of renewing itself.
Continuous quality improvement	Establishing a feed back mechanism in order to diagnose and adjust the flaws, delays, or insufficiencies in the delivery of the services continuously.
Participation	Encouraging the stakeholders to involve in decision-making processes (including brainstorming, planning, and implementing stages) of a sound health care delivery system by using direct and indirect feed back mechanisms.
Reconcilement	Creating a positive atmosphere for reducing conflicts among the stakeholder and to have democratic governance among committed stakeholders.
Volunteerism	Increasing goal congruence towards the system’s objectives by enabling stakeholders to participate voluntarily.
Division of Power	Reorganizing and redefining the role of stakeholders in financing, planning, controlling, and delivering health care services.
Decentralization	Creating autonomous health care organizations [companies?] to efficient and effective decision-making and resource allocation processes.
Competition in Service	Creating a competitive environment in order to increase quality and performance among health organizations.

Source: *Transformation in Health*, Ministry of the Republic of Turkey, 2003.

In fact, several principles of the Transformation in Health program including human centrim, sustainability, continuous quality improvement, and participation have been aimed at organizational level by encouraging government hospital to apply ISO 9001 standards since 1998. In fact, certified hospitals of MoH were expected to focus on

organizational processes, prevent deficiencies, employ systematic problem-solving approaches (based on statistical analysis), and encourage cross-functional teams to identify problems and opportunities for improved care.

Total Quality Management (TQM) and ISO 9000 standardization are not the same thing; ISO 9000 is a narrower approach than TQM. TQM principles involve all aspects of an organization by requiring the transformation of the entire organization, while ISO focuses mainly on the systems used to design, produce, and deploy an organization's products and services (Goetsch and Davis, 2002). The Turkish government, however, has clearly seen ISO standards as a step toward TQM. After failing to reform the Turkish health sector during the first half of 1990s, in its eighth five-year plan covering 2001-2005, the State Planning Agency suggested that public sector organizations follow a Total Quality Management approach in order to introduce the concepts of customer satisfaction, service quality, and outcome focus. Accordingly, public health organizations have begun to implement ISO 9001 standards to reach a quality level required to assure a consistent quality of services and processes (The Ministry of Labor and Security, 2003). Today, ISO certified hospitals are expected to enhance their performance in providing quality health care services, and this study aims to examine this expectation by focusing on ISO certified hospitals performance and comparing their performance with non-certified hospitals' performance during pre-certification and post certification periods.

2. Hypothesis of the study

This study tests the following hypothesis: Hospitals with ISO certification have better performance in enhancing the bed occupancy rate (BOR), the number of outpatient per physician (OpP), and reducing the average length of stay (ALS) and reducing crude death rates (CDR) than non-certified hospitals.

3. Methodology:

As mentioned in the first chapter of the study, we aim to examine whether ISO certification of MoH hospitals facilitates greater process and outcome improvements. In this section, the study tests a series of hypotheses about performance differences between MoH hospitals with ISO certification and without ISO certification. Three process-based dependent variables, namely the average length of stay (in days), the bed occupancy rate (%), and the number of outpatient per physicians, and an outcome-based dependent variable, crude death rate (%) were used to test whether ISO certified hospitals outperformed non-certified hospitals before and after receiving their ISO certifications.

A time series graphic and the data of individual hospitals for each dependent variable are offered to compare and contrast changes in performance of two groups of MoH hospitals from 1993 to 2003. Since the first MoH hospital received ISO certification in 1998, the year of 1998 can be accepted as a milestone year in order to rigorously examine the impact of quality management initiatives on hospitals and medical services in our analysis. Indeed, years between 1993 and 1997 will be termed the pre-certification period, while years between 1998 and 2003 will be called the post-certification period for the sake of this analysis.

4. Research Population and Sample

This study employed availability sampling technique where the researcher selects subjects on the basis of availability. Since this study is interested in MoH hospitals that have had ISO certification for more than two years and preserved the certification hitherto, only ten MoH hospitals out of 668 could be included in this study. Therefore, this study focused on nine out of ten available ISO certified MoH hospitals in order to evaluate impacts of certification on hospital performance.

The selection of the nine MoH hospitals without ISO 9001 certification that will be used as a comparison group was based on two factors. The first factor was the location of ISO 9001 certified hospitals by province. Since the nine ISO 9001 certified MoH hospitals were scattered throughout Turkey, the study intended to use the nine non-certified MoH hospitals located in the same provinces as the ISO certified hospitals. The second factor was type of MoH hospitals with 9001 ISO

certification. As can be noted in the above table, three types of hospitals had ISO certification: six general service hospitals; two education and research hospitals; and one maternity and childcare hospital. Accordingly, the researcher included seven general service, two education and research, and one maternity and childcare MoH hospitals in the comparison group.

Table 3: The list of Ministry of Health Hospitals included in the study

Hospitals with ISO 9001 Certification	Hospitals without ISO 9001 Certification
Dr. Z.T. Kadın Sağlığı Eğitim ve Araştırma Hastası.	Bandırma Dr. M. G. K. Devlet Hastanesi
Balıkesir Devlet Hastanesi	Sarıyer Devlet Hastanesi
Eskisehir Doğum ve Çocuk Bakımevi	Burdur Devlet Hastanesi
Pendik Devlet Hastanesi	Taksim Eğitim ve Araştırma Hastanesi
Bakırköy Dr. S. K. Eğitim ve Araştırma Hastanesi	Dr. Ferhan Özmen Doğum ve Çocuk Bakımevi
Kayseri V. A. O. Devlet Hastanesi	Siirt Devlet Hastanesi
Bor Devlet Hastanesi	Van Devlet Hastanesi
Samsun Devlet Hastanesi	Niğde Devlet Hastanesi
Diyarbakir Government Hastanesi	Bafra Nafiz Kurt Devlet Hastanesi

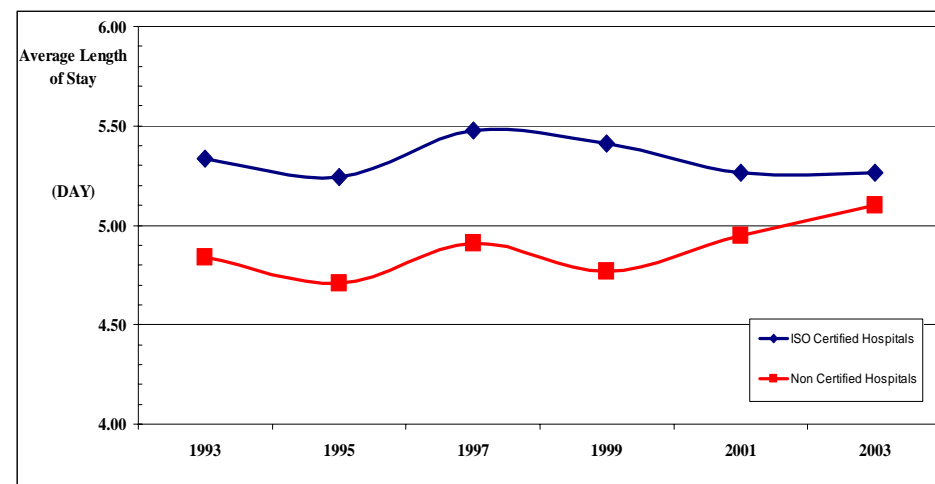
Secondary data for quantitative analysis are determined from the annual reports of MoH which are published to inform Turkish citizens about activities of all MoH organizations, including hospitals. Time series graphics and the data of individual hospitals for each dependent variable will be offered to compare and contrast changes in performance of two groups of MoH hospitals from 1993 to 2003.

5. RESULTS

A. Change in the Average Length of Stay

The Average Length of Stay (ALS) is used to indicate that how many days a person stays in a hospital until he or she is dismissed or dies in a hospital. When a hospital is able to reduce its ALS during a period of time, its performance toward their inpatients during that period is expected to be higher (Sarp et al., 2002). Van Peurse et al. (1995) also indicates that the ALS type discharge rates is to be used in determining effectiveness and efficiency of health care services by hospitals whose number one priority is to provide medical treatments to their patients in a timely manner while using available medical and hospital resources efficiently. Some argue that modern hospitals aim to reduce their ALS minimum of six days or less (Jangaiah, 2000).

Graph 1: Changes in the Average Length of Stay (day) Means of the ISO certified and Non-Certified MoH Hospitals from 1993 to 2003



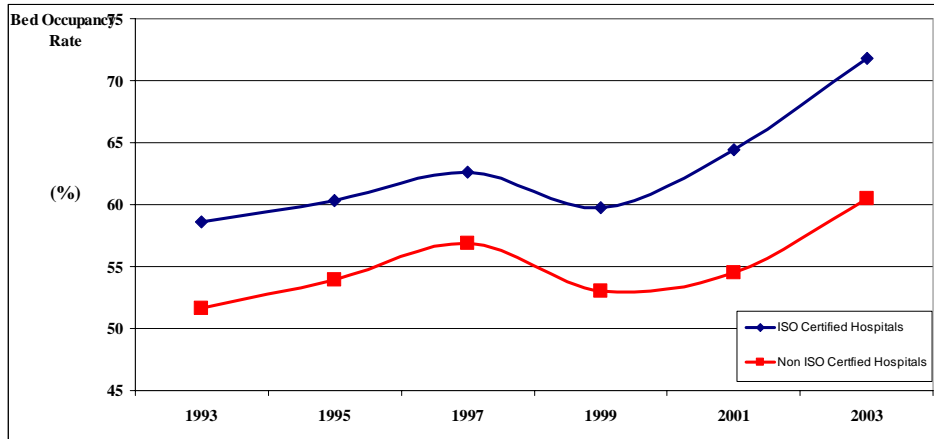
The above time-series graph offers a visual scrutiny of the mean ALS change of certified and non-certified hospitals from 1993 to 2003. The time series graph 1 shows that the ISO certified hospitals had a half day longer ALS group means than those of non-certified hospitals from 1993 to 1997. However, the ISO certified hospitals began to experience a downward trend of slightly lowering the mean ALS values after 1997 whereas non-certified hospitals experienced a slight increase in their mean ALS values from 1998 to 2003. In short, the time series graph

shows that the nine ISO certified MoH hospitals tended to lower their mean ALS values during post certification period.

B. Change in the Bed Occupancy Rate

Bed Occupancy Rate (BOR) is used to indicate that how often hospital beds are used in a given period. The higher the percentage of bed occupancy, the greater the efficiency and effectiveness in using hospital bed resources are. This study assumes that ISO certified hospitals should have increased their BOR values after they were rewarded with ISO certification more than non-certified hospitals.

Graph 2: Changes in the Bed Occupancy Rate (%) Means of the ISO certified and Non-Certified MoH Hospitals from 1993 to 2003

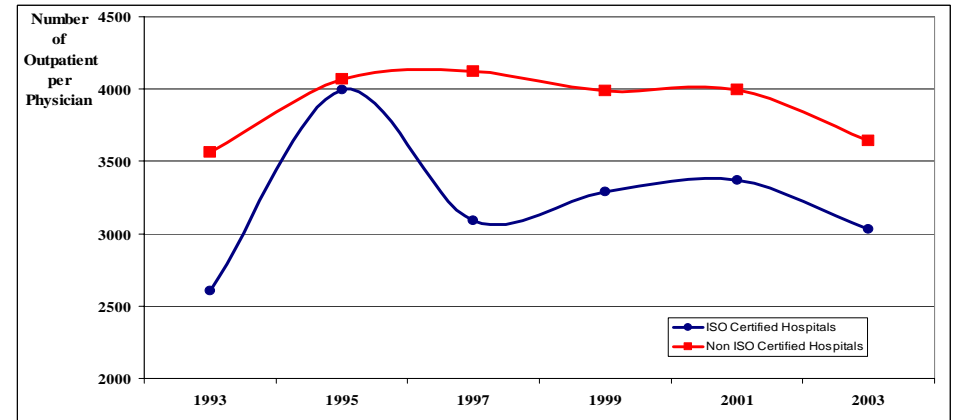


The time-series graph of mean BOR changes from 1993 to 2003 shows that hospitals with ISO certification had greater BOR during the ten-year period than non-certified hospitals. Graph 2 also shows that both groups of hospitals experienced a decrease in their mean BOR between 1997 and 1999. Although the mean BOR values of the nine ISO certified and non-certified hospitals started to increase continuously during the post-certification period, this increase was greater for the ISO certified hospital than non-certified hospitals. In summary, ISO certified hospitals had higher mean BOR than non-certified hospitals, and the former group of hospitals experienced a substantial increase in their mean BOR during the post-certification period.

C. Change in the Number of Outpatients per Physician

The number of outpatients per physician (OpP) is used to evaluate performance of physicians in a given period. The higher the number of outpatients per physician, the greater the physician efficiency in any given hospital is. This study assumes that ISO certification should create appropriate work processes for physicians to examine as many outpatients as possible. In other words, physicians of ISO certified hospitals should be able to examine greater number of patients than those of non-certified hospitals since the ISO certified hospitals are expected to prevent delays in patient admissions while setting proper incentive systems to encourage their physicians to work hard.

Graph 3: Changes in the number of Outpatients per Physicians Means of the ISO Certified and Non-Certified MoH Hospitals from 1993 to 2003

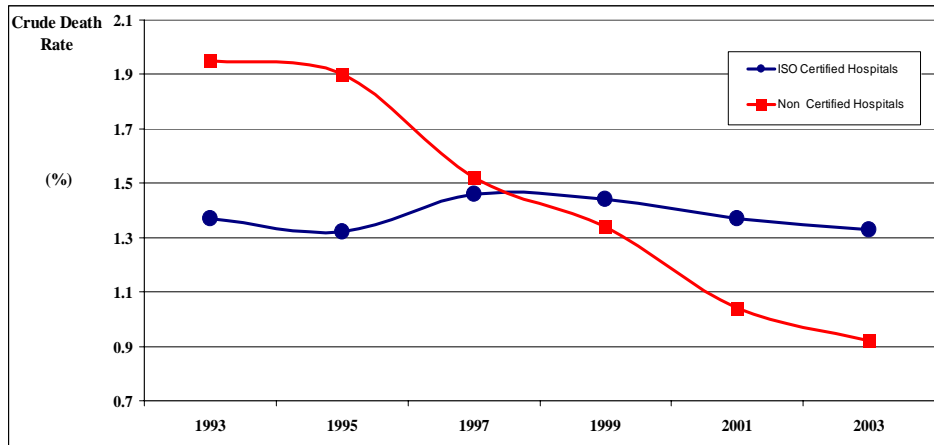


Time-series graph 3 shows that the non-certified hospitals had considerably greater number of OpP than the ISO certified hospitals during the pre-certification period (1993-1997). Although currently ISO certified hospitals' mean number of OpP value reached the highest point with 4000 outpatients per physician in 1995, the hospitals experienced a dramatic decrease in their mean OpP values in the following years. ISO certified hospitals seemed to slightly increase their mean number of OpP after receiving their ISO certifications, but this increase lasted until 2001. Finally, Graph 3 clearly indicates that the number of outpatients per physician mean of certified hospitals were not greater than those of non-certified hospitals during the ten-year period from 1993-2003.

D. The Crude Death Rate

The crude death rate (CDR) indicates how many patients die per 100 inpatients during a given period. Since this indicator shows the curability of a hospital, it is used for evaluation of the quality of hospital services as an outcome indicator. The lower the crude death rate, the greater the performance of given hospital is.

Graph 4. The Crude Death Rates (%) Changes in the ISO Certified and Non-certified Hospitals from 1993 to 2003.



Changes in the mean Crude Death Rate of both groups of hospitals between 1993 and 2003 can be examined from Graph 4. The time-series graph shows that the certified MoH hospitals kept their mean CDR value between 1.3 percent and 1.5 percent during the course of ten-year period; the non-certified hospitals experienced a dramatic decrease in their mean CDR values, from 1.95 to .9 percent. This graph clearly shows that while currently ISO certified hospitals had lower mean CDR values during the pre-certification period than non-certified hospitals, the non-certified hospitals were able to drop their mean CDR values more than the certified hospitals during the post-certification period. In other words, the mean CDR values of the certified hospitals could not decrease their mean CDR values more than non-certified hospitals during the pre- and post-certification periods.

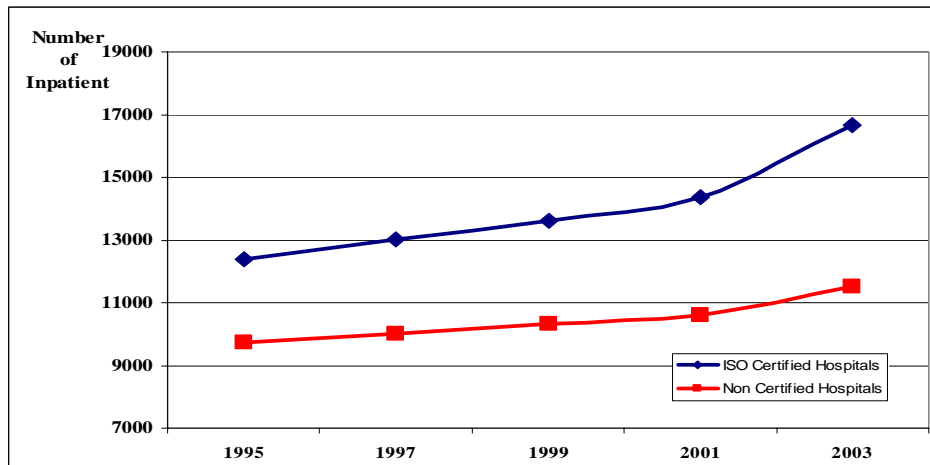
III. Conclusion and Discussion

The findings from quantitative analysis of process measurements indicate that the nine ISO certified hospitals were more successful than non-certified hospitals in enhancing their efficiency in increasing hospital bed occupancy rate (BOR) during the post-certification period. On the other hand, the nine MoH hospitals without ISO certification were found to be more successful than ISO certified hospitals in increasing the average number of outpatients per physicians (OpP). Also, non-certified hospitals were able to decrease the number of days a patient stays (ALS) in the hospital and crude death rate (CDR) more than ISO certified hospitals.

The above results indicate questionable impacts of the ISO certification on MoH hospitals in enhancing their efficiency and performance. To determine possible causes of inadequate performance during the post-certification period (1999-2003), the researcher wanted to discuss whether ISO certified hospitals experienced increased numbers of inpatient admission in four years. In fact, this point deserves an additional consideration if ISO certified hospitals began to have greater number of patients who were in critical conditions or severally ill after certified hospitals' reputation was well-known among citizens. Meanwhile, ISO certified hospitals could have been attracted great number of physicians who were in search of satisfactory work environments, which could cause having lower OpP values.

After having identified those factors mentioned, we believed that comparisons of the number of inpatient admissions and the number of physicians could be useful to draw more rigorous conclusions about the experience of ISO certified hospitals in the Turkish public sector. Hence, we created and examined the following time series graphics (5 and 6) which show the number of inpatients and physicians of the ISO certified and non-certified hospitals between 1995 and 2003.

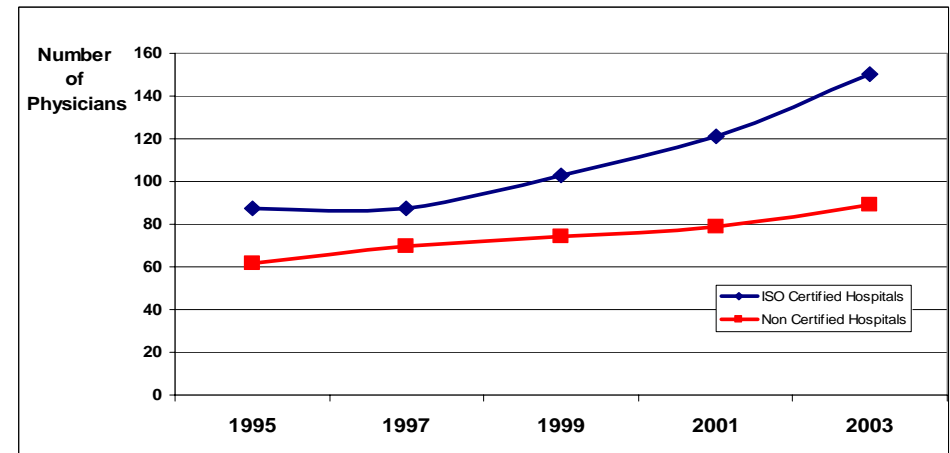
Graph 5: Changes in the mean number of inpatients of the ISO certified and Non-Certified MoH Hospitals from 1995 to 2003



Graph 5 shows that while ISO certified hospitals had a larger number of inpatients than non-certified hospitals, both groups of hospitals increased their number of inpatient means slightly during the pre-certification period (1995-1997). During the post-certification period (1999-2003), the number of inpatient means of ISO certified MoH hospitals increased dramatically, from about 13,600 to 16,600, whereas non-certified hospitals experienced an increase from about 10,300 to 11,500. This means that ISO certified hospitals tended to attract a greater number of inpatients than non-certified hospitals during the post-certification period.

As already mentioned, ISO certified hospitals were found to have longer ALS values and higher CDR means than non-certified hospitals. But, it can be argued that ISO certified hospitals had such longer ALS values and higher CDR means because their inpatients needed longer medical and hospital care and had a low chance of survival. However, we could not determine that the majority of inpatients who preferred admission to ISO certified hospitals were in critical conditions or severely ill, due to the unavailability of case-mix inpatient data which would let us adequately distinguish the performance differences between certified and non-certified hospitals in reducing the average length of stay (ALS) and crude death rates (CDR).

Graph 6: Changes in the number of physicians of the ISO certified and Non-Certified MoH Hospitals from 1995 to 2003



Graph 6 points out that while the number of physicians who worked in the nine ISO certified hospitals was larger than those in non-certified hospitals during the pre- and post-certification periods (1995-2003), the difference between both hospital groups increased noticeably during the post-certification period (1999-2003). In other words, ISO certified hospitals experienced an increase in their numbers of physicians mean from 103 to 150, while non-certified hospitals experienced an increase from 74 to 89 during the post-certification period.

These results also show that physicians prefer working within the certified hospitals more than non-certified hospitals. Considering our findings, it can be argued that ISO certified hospitals tended to have smaller numbers of outpatients per physician means than non-certified hospitals, since the former group of hospitals attracted more physicians after improving hospital work environment. Therefore, this study also argues that the attempt to measure physicians' productivity in ISO certified and non-certified hospitals (using only OpP) could provide the level of technical efficiency in using hospital human resources, but not the quality of the work environment in the hospital and the quality of medical services offered to patients. For instance, there may be a negative relationship between an average consultation time and the number of patients examined by physicians of a given hospital, since the shorter the average consultation time the greater number of patients per

physicians. However, patients' profiles would be another factor in determining the average length of consultation, since complicated cases and severely ill patients need to have longer consultation times than temporarily ill patients. If severely ill patients tend to prefer ISO certified hospital, physicians of those hospitals may tend to spend a long time examining their patients to be able to diagnose the illness accurately. If this is the case for current ISO certified hospitals, we can argue that although certified hospitals seem to have lower OpP values, their patients may be very satisfied with physicians services due to sufficient consultations.

In sum, it cannot be explicitly concluded whether ISO certified MoH hospitals have improved their performance and quality more than non-certified hospitals by using available four performance indicators offered by MoH. On the one hand, the findings of the study indicate that there is no significant difference between ISO certified and non-certified MoH hospitals in sense of main hospital service performances. On the other hand, this performance indifference may not be explained by stating that ISO certification efforts did not contribute any performance and quality improvements for MoH hospitals since ISO certified hospitals were able to attract more patients and doctors than non-certified hospitals during the post-certification period. Moreover, one can argue that highly centralized and physician-oriented current Turkish health care system has adverse affects on quality management efforts at MoH hospitals which have limited decision rights on their resource allocation and control over human resource management (such hiring, firing, and contracting-out etc.).

This study shows that although there was not significant difference between certified and non-certified hospitals' performance, more patients prefer to receive health care services from certified hospitals. Among other critical issues, there are internal and external factors that impact on patients' preferences about hospital selection in Turkey including public health care standards and availability of health care services in particular areas. Also, health care delivery emphasizing quality of care and patient-focused management are two important organizational level factors that may have certain impacts on attracting more patients than before. There is no doubt that ISO certification introduced a new managerial and organizational approach to inherently

hierarchical government hospitals by offering rigorous documentation, customer orientation, effective communication, and participation to decision-making mechanisms. However, this study emphasizes that available performance indicators used by government hospitals to measure their improvements are not sufficient to evaluate ISO certifications impacts on hospital services.

This study lastly emphasizes that experience of ISO certified hospitals should cast some light on future initiatives in Turkish health care sector. In this regard, health care policy-makers in Ankara may establish a focus group including top management of ISO certified hospitals and quality management department representatives who could convey their experiences how quality management systems approach impact their way of leading hospitals. This would be very beneficial considering the latest Turkish health care reform program (Transformation in Health) aspired to introduce autonomous and decentralized organizational structures in the Turkish public sector. As the Transformation in Health program is at the implementation stage, the experience of ISO certified MoH hospitals could be significantly valuable in conceptualizing a road map for many other health care organizations.

Limitations of the Study and Future Research Directions

The first limitation of the study is related with small sample size of the study, including only nine certified and nine non-certified hospitals out of 668 MoH hospitals. As noticed, our sample size represents less than 3% of population. Therefore, the findings of our quantitative analysis cannot be generalized for other hospitals run by MoH.

The second limitation is related with longitudinal impacts of ISO certification on hospital performance and quality. Only two hospitals were awarded with ISO 9001 certification and preserve their certification since 1998, while other seven since 2000. In general, three year involvement of these seven hospitals in quality management and performance improvement via ISO 9001 can be argued as an inadequate time period to examine changes statistically. Therefore, having small sample size with relatively short time period to measure the affect of ISO

certification on hospital performances does create generazibilty limitation for this study.

In addition to small sample size and insufficient longitudinal research design limitations, the lack of adequate number of process and outcome hospital indicators also limits to measure the impact of ISO certification on MoH hospitals. The secondary data used in this study included four process-based performance indicators and one outcome indicator. In the case of the technical efficiency measurement of hospitals, current input and process indicators used by MoH hospitals are not sufficient to measure the core dimensions of hospitals' performance accurately. The available process-based hospital indicators, such as the average length of stay, bed occupancy rate, bed turnover rate, the number of surgical operations, and the number of patients per physicians, can be used to measure some level of clinical effectiveness, but these indicators cannot be used to evaluate the technical efficiency of hospitals in providing patient-centered, effective clinical services. In this vein, each treatment of hospitals will vary according to the illness of the patient so that different treatments will employ different proficiencies and technologies and require different quantities and type of inputs. Therefore, MoH hospitals should categorize their clinical data based on similar hospital treatments in order to measure clinical effectiveness and production efficiency.

REFERENCES:

- Adinolfi, Paola (2003). "Total Quality Management in Public Health Care: a Study of Italian and Irish Hospitals," *Total Quality Management & Business Excellence*. March 2003, vol. 14, Issue: 2, pp. 141-151.
- Aiken, Linda; Clarke, S.P., and Sloane, M. D. (2002). "Hospital Staffing, Organization, and Quality of Care: Cross-National Findings," in *Nursing Outlook*. 2002:50: 187-194.
- Al-Assaf, A. F. (2001) "Heath Care Quality: Past and Present", *Health Care Quality: An International Perspective*. Ed. A.F. Al-Assaf. World Health Organization. India: New Delhi, pg. 1-13.
- Ferlie, Ewan B. and Stephen M. Shortell. "Improving the Quality of Health Care in the United Kingdom and the United States: A Framework for Change," in *Millbank Quarterly*. 2001,Vol. 79, No.2, p.281-315.
- Goetsch, David L. and Stanly B. Davis (2002). *Understanding and Implementing ISO 9000:2000*, 2nd edition. Prentice Hall: Upper Saddle River, New Jersey.
- Harten, Williem H. van, Ton F. Casparie, Olaf A.M. Fisscher, "The evaluation of the introduction of a quality management system: A process-oriented case study in a large rehabilitation hospital", *Health Policy*, 60 (2002), pp. 17-37.
- Kay, Tan and Lim Chai Soon (2000)."A detailed trends analysis of national quality awards world-wide," *Total Quality Management*. Vol. 11, No. 8, pp. 1065-1080.
- Klazinga, Niek (2000). "Re-engineering trust: the Adoptation and adaptation of four models for external quality assurance of health care services in Western European Health Care Systems", in *International Journal for Quality in Health Care*. Volume 12, Number 3, pp. 183-189.
- McKee, Martin and Judith Healy (2002). "Investing in Hospitals," in *Hospitals in a Changing Europe*. Ed. By Martin McKee and Judith Healy. European Observatory on Health Care Systems Series. Open University Press; Philadelphia, USA.
- Ministry of Health, 2003 annual health statistics
- Nabitz, U.; Niek Klazinga, and Jan Walburg (2000). "The EFQM excellence model: European and Dutch experiences with the EFQM approach in health care," in *International Journal for Quality in Health Care*. Vol. 12, No. 3, pp. 191-201.
- Ovretveit, John (2003). "What are the best strategies for ensuring quality in hospitals?," WHO Regional Office for Europe's Health Evidence Network.
- Preker, Alexander S. (2001). "Global Development Challenges and Health Care Reform," in *World Hospital and Health Services*, 2001; 37 (3); pp. 2-8, 40, 42.
- .Ruiz, Ulises and Jose Simon (2004). "Quality Management in health care: a 20-year journey," in *International Journal of Health Care Quality Assurance*. Volume, 17, No. 6. pp.323-333.

- Sarp, Nilgun, Afsun E. Esatoglu, and Yasemin Akbulut. "An Example of Health Sector Reforms in Turkey: Hospital Decentralization" in *Journal of Ankara Medical School*, Vol. 55, No. 1, 2002, pp. 9- 18.
- Savas, B.S., Omer Karahan, R. Omer Saka "Health Care Systems in Transition: Turkey". In eds. Sarah Thompson and Elias Mossialos. Copenhagen, *European Observatory on Health Care Systems*, 4 (4) (2002)
- Shaw, Charles (2001). "External Assessment of Health Care," in *British Medical Journal*. April 2001, Vol.322. pp. 851-854.
- Van Peurseem, K. A., M. J. Pratt, and S. R. Lawrence. "Health Management Performance: A review of measures and indicators" in *Accounting, Auditing & Accountability Journal*, Vol.8 No.5, 1995, pp. 34-70.
- World Bank (October, 2003). *Memorandum of the President of the International Bank for Reconstruction and Development and the International Finance Corporation to the Executive Directors on a Country Assistance Strategy of the World Bank Group for the Republic of Turkey*. Report No. 26756 TU
- World Bank (2003a.) Human Development Sector Unit: Europe and Central Asia Region. "Turkey: Reforming the Health Sector for Improved Access and Efficiency" (Two Volumes).Volume II: Background Papers. Report No. 24358-TU.
- World Bank (2003b.) Human Development Sector Unit: Europe and Central Asia Region. "Turkey: Reforming the Health Sector for Improved Access and Efficiency" (Two Volumes).Volume I: Main Report. Report No. 24358-TU.