

**Republic of Tunisia**

# **Health Sector Study**

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Middle East and North Africa Region**



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**Abbreviations and Acronyms**

ALOS	Average Length of Stay	FPP	Family Planning Program
AMG	Assistance Médicale Gratuite (Free Medical Assistance)	GDP	Gross Domestic Product
ASFR	Age-Specific Fertility Rate	GOT	Government of Tunisia
BOD	Burden of Disease	GP	General Practitioner
BMI	Body Mass Index	HDI	Human Development Indicators
CBR	Crude Birth Rate	IEC	Information, Education, and Communication
CDR	Crude Death Rate	IMR	Infant Mortality Rate
CHU	Centre Hospitalier Universitaire (University Teaching Hospital)	INSP	Institut National de Santé Publique (National Institute of Public Health)
CIMSP	Information Center of the Ministry of Public Health	ISO	International Standards Organization
CNAM	Caisse Nationale d'assurance maladie (National Health Insurance Fund)	LH	Local (District) Hospital
CNRPS	Caisse Nationale de retraite et de prévoyance Sociale (National Retirement and Contingency Fund)	MC	Maternity Centers
CNSS	Caisse Nationale de sécurité sociale (National Social Security Fund)	MDGs	Millennium Development Goals
CSB	Centres de santé de base (Primary Health Care Centers)	MENA	Middle East and North Africa (Region)
CT	Computerized (Axial) Tomography	MMR	Maternal Mortality Ratio
DALY	Disability-Adjusted Life Year	MOF	Ministry of Finance
DHMPED	Direction de l'Hygiène du Milieu et de la Protection (Directorate of Environmental Hygiene and Protection)	MOPH	Ministry of Public Health
DMSU	Direction de la Médecine Scolaire et Universitaire (Directorate of School and University Health)	MOSA	Ministry of Social Affairs
DSSB	Direction des Soins de Santé de Base (Directorate of Basic Health Services)	MRI	Magnetic Resonance Imaging
EMRO	Eastern Mediterranean Regional Office	N/A	Not Applicable
EPA	Publicly Owned Establishments	NGO	Non-Governmental Organization
EPIC	Publicly Owned Industrial and Commercial Establishments	NPP	National Perinatal Program
EPS	Etablissement Publics de Santé (Public Health Establishments)	ONFP	Office National de la Famille et de la Population (National Office of the Family and the Population)
ERVs	Emergency (Room) Visits	OPVs	Outpatient Visits
FP	Family Planning	PCT	Central Pharmacy of Tunisia
		PEM	Protein Energy Malnutrition
		PHC	Primary Health Center
		RH	Regional Hospitals
		SS	Social Security
		TND	Tunisian Dinars
		UNDP	United Nations Development Program
		UNFPA	United Nations Fund for Population (Activities)
		TFR	Total Fertility Rate
		WHO	World Health Organization

<b>Vice President:</b>	Christiaan J. Poortman
<b>Country Director for the Maghreb:</b>	Theodore O. Ahlers
<b>Sector Director:</b>	Michal Rutkowski
<b>Task Team Leader:</b>	Sameh El-Saharty

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The World Bank team was composed of Dr. Sameh El-Saharty, Senior Health Policy Specialist and Team Leader; Anne Johansen, Senior Health Specialist; Hugh Waters, Health Economist; Axel Rahola, Health Insurance Specialist; Djordje Gikic, Research Analyst and Editor; Miho Tanaka, Data Analyst; and Maissa Ahmed Abdel Rahmane, Team Assistant.

The report was validated and reviewed by Dr. Nouredine Achour, Director of the National Institute of Public Health and Acting Director of the Department of Studies and Planning of the Ministry of Public Health; and Dr. Sonia Ben Cheikh; Assistant Lecturer at the Faculty of Medicine of Tunis.

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## Definition of Terms

Contraceptive Prevalence Rate	The percentage of married women of reproductive age who are using (or whose husbands are using) any form of contraception.
Crude Birth Rate	Number of live births per year per 1,000 people.
Crude Death Rate	Number of deaths per 1,000 people.
Dependency Ratio	Population 14 years or under and 65 years or older as a percentage of the population aged 15 to 64 years.
Female/Male Literacy Rate	The percentage of persons aged 12 and over who can read and write.
Infant Mortality Rate	Annual deaths of infants younger than 1 year old per 1,000 live births during the same year.
Life Expectancy at Birth	The number of years a newborn child would live if subject to the age-specific mortality rates prevailing at time of birth.
Low Birth Weight	Infants whose weight at birth is less than 2,500 grams.
Maternal Mortality Rate	Number of maternal deaths per 100,000 births in a given year attributable to pregnancy, childbirth, or postpartum.
Rate of Population Growth	The rate at which a population is increasing (or decreasing) in a given year due to natural increase and net migration, expressed as a percentage of the base population.
Total Fertility Rate	The average number of children a woman will have if she experiences a given set of age-specific fertility rates throughout her lifetime. Serves as an estimate of the number of children per family.
Under-Five Mortality Rate	Annual number of deaths of children under five years of age per 1,000 live births. This figure represents the probability of dying between birth and five years of age.



## **Preface**

This study was prepared in an opportune moment as it marks the end of about two decades of assistance by the World Bank to the health sector in the Republic of Tunisia. This support was aiming at strengthening the capacity and improving the delivery of the health services in the public sector particularly in the domains of reproductive health, primary health care services, hospital reform and health sector development.

In accordance with orientations of the Ninth Five-Year Development Plan, the Ministry of Public Health has recently completed a health sector project, which was financed by the World Bank. The objectives of that plan were to improve efficiency in the health sector, to increase the sustainability of the health care financing system, and to improve quality of care in the public system. The project had similar objectives, focusing on secondary care and regional hospitals (RHs). Twelve hospitals were renovated, expanded, and improved, and new equipment was purchased for all regional hospitals. In addition, the staff was strengthened both quantitatively and qualitatively, and a number of reforms were carried out to improve the management of these hospitals, providing them with greater autonomy, and decentralizing a number of administrative tasks previously handled by the central authorities.

Financial sustainability for regional hospitals was increased by the introduction of a new billing system for those patients receiving health care covered by social insurance funds. The billing system resulted in a dramatic increase in the budget of the RHs from 2 to 62 percent during the project. This and other accomplishments contributed to the successful achievement of the projects' development objectives.

In spite of the project's success, a number of challenges remain. The long-term sustainability of the financing system remains a concern, as does quality of care, and the health system's ability to respond to the changing burden of disease caused by the epidemiological transition, which Tunisia is currently undergoing. The continued unregulated growth of private health care providers must also be addressed if the Government of Tunisia (GOT) is to control health expenditures while ensuring equitable access to quality health care for all its citizens. These and other challenges are among the priorities identified in the Government of Tunisia's Tenth Five-Year Plan currently under implementation.

This report has been prepared, in close collaboration with the Ministry of Public Health, to assist the GOT in addressing pressing issues currently facing the Tunisian health sector.

A number of data and information sources were utilized in this study including: the 2000 household consumption and expenditure survey (National Institute of Statistics); the National Health Management Information System (Ministry of Public Health Center for Health Information); the databases of the Directorate of Primary Care; the Public Health Institute; as well as the national cancer registry; and the maternal and child health outcomes register. In addition, this report also contains the first analyses of data from the 2002 health utilization survey, conducted by the National Institute of Public Health (IPH) as part of the completed health sector loan.

This report also relies on a myriad of published articles, as well as a number of scientific studies on particular health issues, e.g., Ischemic Heart Disease and Associated Risk Factors (National Institute of Public Health, 2002). The section on quality of health care includes the results of a patient and provider satisfaction survey, prepared by the NIPH in 2002, as well as the report on quality of health care that was discussed during a three-day quality of care conference, which took place in Hammamet, Tunisia, in June 2004.

Finally, in addition to the quantitative data sources, information also was obtained through interviews with a wide range of key informants, at all levels in both the public and the private health sector, including health care providers, managers, and policy makers. Sources of data and information are cited throughout this study, and a comprehensive bibliography appears in the reference section of the report.

## **EXECUTIVE SUMMARY**

The Tunisian health sector has performed relatively well over the past decades. Although annual health expenditures are still below USD 150 per capita, Tunisians enjoy a relatively high life expectancy – estimated to be 73 years in 2004, low infant mortality at 19 deaths per 1,000 live births, and relatively low maternal mortality at 70 deaths per 100,000 live births. Health coverage has been extended to a large majority of the population.

However, Tunisia faces critical challenges in building on these achievements and ensuring the financial sustainability of the health system in the long term. Financing for health would considerably increase in the future, as relatively expensive technologies become increasingly available, as the demographic and epidemiologic transitions continue their course, and as Tunisians continue to expect more from their health system. In particular, expanding coverage – in terms of the benefits package paid for – will require additional investments in the health sector.

These evolutions will require important adjustments to improve both the financing and the performance of the health system.

### **SOCIOECONOMIC CONTEXT**

Tunisia is a middle-income country, with a gross domestic product (GDP) in 2003 of around USD 2,000, with an annual growth rate of 5 percent. Although still faced with an unfavorable external environment, a full recovery and continued economic growth is projected in the coming years. Data from various surveys show that the absolute numbers of poor people decreased significantly, although some inequities remain and unemployment remains high at 13.9 percent in 2004. About 77 percent of the population had access to a safe water supply and about 95 percent of households had access to electricity in 2001, but the rural populations have relatively poorer access to both.

Tunisia stands out as the most progressive Arab nation on women's issues. According to the UNDP's Program for Governance in the Arab Region, the personal status of women in Tunisia is generally equal to that of men. These conditions have provided a supportive environment in terms of addressing women's health issues. Overall, Tunisia has a relatively positive and stable outlook for economic development, and these are also reflected in the steady improvements in the health outcomes over the past decade. At the same time, it faces new and emerging challenges to meet the changing health care demands and needs of the population as the country undergoes demographic and epidemiologic transition. These trends are likely to increase the cost of health care and require new investments in different types of health services.

### **DEMOGRAPHIC AND EPIDEMIOLOGIC PROFILES**

Tunisia's current demographic and epidemiological profiles exhibit the transition that characterizes most middle-income countries. The population growth rate has decreased steadily over the past decade, and the total fertility rate (TFR) has reached below the fertility replacement level of 2.1. While the population will continue to grow over the next decades due to the demographic momentum, the growth rate will occur at much slower rates, and the percentage of the aging population will inevitably increase.

Tunisia has also performed satisfactorily in terms of the basic health outcomes, such as infant mortality rates (19 per 1,000 live births), which is well below the MENA average and other lower-middle-income countries. The maternal mortality ratio (MMR) is estimated around 70 per 100,000 live births, which is in line with countries at similar income level. However, there are large variations in health outcomes between urban and rural areas and across regions. As in most middle-income countries, many of the communicable diseases such as malaria are under control, but emerging public health problems such as HIV/AIDS present a new challenge.

The major challenge facing Tunisia today is the growing burden of chronic diseases and body injuries, which now represent 58 percent of the disease burden. For example, the prevalence of cardiovascular diseases is 16 percent, hypertension about 11 percent, and diabetes about 9.8 percent, and these rates are expected to increase. Moreover, obesity is around 15 percent among adults, which points to a high risk factor for the rising burden of non-communicable diseases. These conditions will require significant investments.

## **OVERVIEW OF THE HEALTH CARE SYSTEM**

The health delivery system is predominantly public, with a growing private sector. At the national level, about 88 percent of hospital beds belong to the public sector. The main provider of care is the Ministry of Public Health, which is organized into three levels of care. The primary care level comprises some 2,028 primary health care (PHC) centers, Local Hospitals which are small facilities averaging about 23 beds per facility, and maternity centers, which together account for about 14 percent of the bed capacity in the public sector. Primary health care accounts for 27 percent of MOPH expenditures. The secondary health care level is provided by 34 regional hospitals (RHs), which are general hospitals that account for about one-third of the total bed capacity and physician specialists in the public sector. This level absorbs about 25 percent of MOPH budget and receives additional funding through its self-generated revenues and reimbursements by the social security system. The tertiary health care level is composed of a network of 22 university hospitals (*Etablissements de Santé Publiques - EPS*) ranging in size from 26 to 1,010 beds, and with an average bed size of 390. They constitute about 50 percent of total public sector beds and absorb almost half of the MOPH budget.

There is a growing private sector in health care, accounting for some 12 percent of total bed capacity and 70 percent of the high-end technology services. In terms of human resources, it employs 50 percent of the doctors, 73 percent of the dentists, and 80 percent of the pharmacists. Private clinics are concentrated almost equally in the large urban zones, and half in the capital city. The private providers are financed largely by direct household spending.

### ***Health Coverage***

More than 80 percent of the Tunisian population has access to health care either through a health insurance scheme or a medical assistance program. This is a remarkably high percentage for a country at Tunisia's income level. There are two main types of social security coverage for approximately 7 million persons or 71 percent of the population. The CNSS (*Caisse Nationale de Sécurité Sociale*) provides health care coverage to 1.950 million private sector enrollees and their families, which include employees, independent workers, and other categories such as students, the disabled, non-salaried agricultural workers, and Tunisians working abroad. The CNRPS (*Caisse Nationale de Retraite et de Prévoyance Sociale*) covers approximately 0.746 million public sector employees, retirees, and their families. Relatively poor households are covered by two subsidized medical assistance programs (*Assistance Médicale Gratuite - AMG*), which apply

to the enrollees and their families. The poorest are covered under AMG1 (0.17 million enrollees in 2005) and receive free care in the public sector, while the less vulnerable are covered under AMG2 (0.548 million enrollees) and receive care at greatly reduced fees, after paying a 10 TD annual fee for the validation of their health care card.<sup>1</sup>

### ***Health Expenditures***

Health expenditures have dramatically increased during the past two decades, with an annual average growth rate of 11.7 percent. There are three major sources of financing for health expenditures. In 2004, the State budget from government general revenues constituted 21.8 percent, social health insurance contributed about 23.3 percent, and direct household spending accounted for 53.6 percent (including about 9 percent, which is reimbursed by the voluntary health insurance schemes, and about 1.3 percent by the corporate work health services of total health expenditures. Almost half of household expenditures are spent on drugs and about one-third on ambulatory care. Household surveys showed an increase in the share of income that is spent on health, which reached an average of 10 percent in 2000.

The increase in health spending reflects health system dynamics that are affected by economic growth, demographic and epidemiologic transitions, and technological advances. The increase in health expenditures is outpacing the country's economic growth, and most of the increase is being borne by households. Between 1990 and 2003, total MOPH expenditures increased at an average growth rate of 10 percent, but its relative share in total health expenditures decreased from 80 percent to 64 percent over the same period. The increasing reliance on direct household spending would suggest that an increasing share of health financing is being provided through a mechanism that does not ensure adequate risk pooling and social protection for the population.

## **HEALTH SYSTEM PERFORMANCE**

### ***Efficiency***

Compared to other countries of the world with similar income and level of health spending in 2002, Tunisia has achieved a much higher life expectancy rate, and lower infant, child, and maternal mortality rates. At the macro level, Tunisia's health system appears to be performing relatively well, with health outcomes that are generally commensurate with the level of income, compared to other countries of the world. However, the analysis of the system performance at the micro level reveals considerable scope for increasing efficiency in terms of allocation and utilization of available resources, and notably through greater use of public-private partnership.

Tunisia has effectively used its public PHC network to combat communicable diseases and maternal and child health diseases, which significantly improved its health outcomes. The existing PHC model however was effective at the early health transition, but is no longer the case. Today, the average number of outpatient visits has dropped to 1.0 per patient per year, and about 73 percent of the PHCs are open for medical consultations only 3 days or less per week. The workload of PHC doctors is variably low. Furthermore, the average length of stay (ALOS) at the LHs was 3.5 days, and the average occupancy rate is very low at only 36 percent. These low utilization rates indicate that PHC is not being used effectively and that the population is seeking

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<sup>1</sup> The title of these programs was recently changed to "Beneficiaries of the free health services scheme" for AMG1 and "Beneficiaries of the reduced-fee health services scheme" for AMG2.

care at other levels of the public health system or in the private sector. These inefficiencies are also evident in the secondary level.

Although some improvements in utilization rates have been recorded in the Regional Hospitals, reflected by the significant increase in the number of admissions and inpatient days, the occupancy rate remains very low at 58 percent, significantly below their potential full capacity. At the tertiary level, the occupancy rate is 79 percent, indicating that at this level the public hospitals appear to be functioning at or near capacity. Tertiary care services accounted for 45 percent of total hospital admissions and 61 percent of the total number of hospital days in the MOPH. These utilization patterns suggest that there is significant scope for improving the system efficiency by invigorating the lower levels of the health care system.

In general, there are large differences in the cost of the same service across different hospitals, as well as large differences in service costs within the same hospital, which suggest technical inefficiency.

### ***Access and Equity***

More than 80 percent of the Tunisian population has access to health care either through a health insurance scheme or a medical assistance program. Moreover, the health infrastructure and human resources at the primary and secondary levels are fairly distributed across the country. However, regional variations in terms of health outcomes and utilization still exist. IMR in rural areas (30 per 1,000 live births) is almost double that in urban areas (16 per 1,000 live births) and full immunization rate coverage is more than six times higher in Nabeul (95 percent) than in Tataouine (15 percent). This inequitable access is aggravated by the growing financial burden on the household, which already contributes more than half of the total health expenditures through direct out-of-pocket payments.

### ***Quality***

In its endeavor to improve the quality of health care, Tunisia has focused its efforts on enhancing inputs, and moving only later to process improvement and outcomes monitoring. Much attention has been given to upgrading secondary and tertiary care facilities, including emergency services, through investments in facilities and equipment. Significant efforts have also been made to improve all types of human resources through training programs for the medical, paramedical, managerial, and administrative staff. Early efforts to improve the process of, and outcome from, health care focused on maternal and infant mortality, which produced significant results for birth outcomes. Moreover, the primary health care division of the MOPH has been a pioneer in terms of developing guidelines at the primary care level for the treatment of patients with chronic diseases. In 2003, a new department for quality of care was established in the MOPH and a National Quality Improvement Strategy was launched. Despite these efforts, anecdotal and observational evidence suggest that substantial input, process, outcome, and patient satisfaction issues remain to be addressed. In 2003, a study to gauge the user's perception of the technical and service quality of the regional hospitals revealed that only half of the users were satisfied with the quality of care in the regional hospitals.

## **PROPOSALS TO REFORM THE HEALTH SYSTEM**

The health insurance reforms currently proposed offer opportunities for improving the coverage, equity, and financing of the health system while strengthening critical health systems functions including purchasing and regulation of health services, and accreditation of health service

providers. There are also a series of important policy questions that will need to be addressed in the short run as Tunisia moves forward with the implementation of these reforms. The financial sustainability of the new health insurance system is a principal area of concern, including the potential problem of adverse selection of patients and financing between public and private providers, the importance of cost containment measures, and the potential for raising new revenues to pay for the expansion of coverage and benefits.

The success of the health insurance reforms will also depend to a great extent on the ability of the National Health Insurance Fund (CNAM) and other parts of the government to negotiate with, regulate, and accredit providers. Under the new health insurance system, the responsibilities of the CNAM will include contracting with providers in the public and private sectors, accreditation of these providers, and subsequent regulation of the services and information provided. Whether services are offered by public or private health care providers, CNAM will have an important role in defining the benefits package and levels of co-payments and in overseeing the system.

As described in this report, the proposed health insurance reforms will create a single public health insurance fund (CNAM) and allow its beneficiaries to choose from three different insurance schemes (*filières*) – a public sector scheme, a private sector scheme, and a reimbursement scheme. Each scheme has its own set of benefits and cost control measures. The public sector scheme offers access to all services provided in the public health system, including ambulatory and inpatient care, and procedures and drugs in the hospitals. In order to encourage beneficiaries to choose this scheme, the required annual co-payment will be capped at a reasonable level. Above this level, all additional costs would be borne by the CNAM. As is currently the case, certain types of public employees would be exempt from co-payments under this scheme.

The private sector scheme, by contrast, would enable beneficiaries to obtain care in the private sector. In this scheme, beneficiaries would be required to choose a primary care provider, who would serve as a gatekeeper to specialized care (one of the proposed cost control mechanisms). Referral for certain types of specialized care, such as ophthalmology, gynecology, pediatrics, and dentistry, would, however, not be required. The doctors participating in this scheme would have to agree to the fees and co-payments established by the CNAM and would not be able to bill their patients for additional fees – in other words, balance billing will not be allowed. The co-payments for services received under this scheme would exceed those for the public sector scheme to reduce the incentive for citizen to choose this option.

The reimbursement scheme is very similar to the current optional scheme of the CNRPS. It would allow the patient to consult any provider of care, irrespective of specialty or sector. In return, the patient would have to pay for the care received and then request reimbursement from the CNAM. Fees and co-payments would also be established by the CNAM based on the service provided; no balance billing would be allowed. Finally, total (annual) reimbursement would be capped at lower levels than those for the private sector scheme.

The details of the provider payment mechanisms and rates (including cap) will still require negotiation with the different stakeholders. The above schemes would initially cover outpatient care only. Hospital care would be covered only in the public sector, with certain exceptions. The reform envisions phased-in coverage of hospitalizations, starting in the public sector, then extending to beneficiaries in the private sector and in the reimbursement schemes. Existing agreements for coverage of specialized services in the private sector – for example, for

hemodialysis, open-heart surgery, and other highly specialized care – would continue to be covered regardless of the scheme chosen.

In terms of financing mechanisms, active workers (and the self-employed) covered by the CNAM will pay a tax of 6.75 percent of their wages or income. For employees, this will be split between the employer and employees, with the former paying 4 percent and the latter 2.75 percent. Self-employed workers will be responsible for the entire tax themselves. For recipients of social pensions, a tax of 4 percent of the pension will be imposed to pay for this category of beneficiaries. This rate appears to be relatively low. It is important to mention that for the workers benefiting from the social security, these rates will be implemented progressively over a three- to five-year period.

Eventually, all social security beneficiaries (currently 2.696 million) and their dependents will be covered by at least the public sector scheme. In order to achieve this goal, a progressive method will be used to extend the plan to all the different social and professional categories in the social security system. The first ones to be covered will be CNRPS (public sector) beneficiaries, followed by the non-agricultural salaried workers of the CNSS. These two groups currently represent 78 percent of potential social security beneficiaries, or 2.1 million persons (and their families). In the second year after the implementation of the reforms, the program would extend to the non-salaried workers and salaried workers of the improved agricultural sector. In the third year, the plan will extend to the salaried agricultural workers.

## **PROPOSED HEALTH SECTOR RECOMMENDATIONS**

The proposed reforms may not resolve all of the health system challenges. Moreover they present new challenges that need careful consideration. This study has therefore proposed a series of recommendations for the Tunisian health sector that focus on the critical elements of the sector, including health financing and insurance, health delivery system, quality of care, and health information systems. The highlights of these recommendations are captured below.

### ***Health Sector Financing that is Rational and Sustainable***

Health sector financing in Tunisia has increased in recent years, both in absolute terms and relative to overall economic performance. The percentage of GDP devoted to health increased from 4.2 percent in 1985 to 5.6 percent in 2003. Annual health expenditures per capita have increased by five fold from 39 TND in 1985 to 197.7 TND in 2004, representing an average nominal annual growth rate of 10 percent. However, as Tunisia continues to traverse the epidemiologic transition with increasingly expensive chronic disease conditions, the need for additional health sector funding will become more acute over time.

Additional funding for the health system should come from public funds and private capital. As end users of the health system, households are already paying for more than half (53.6 percent) of health sector financing, with the remainder split between the national budget and social security. The high level of financing paid directly by households represents potential problems both in terms of effective coverage of the system and financial protection of individual families. As health insurance is expanded in terms of benefits, cost-sharing should focus predominantly on premiums, with co-payments kept at a moderate level to ensure that financial barriers at the point of service are maintained at a relatively low level.

The design of financing mechanisms is essential to the success of the reforms. The contribution rate must be high enough to provide sufficient resources to the health care system without handicapping the Tunisian economy. In the private sector regime (CNSS), the rates are planned to progressively increase from 4.75 percent of salary (1.32 % paid by the employee and 3.43 % by the employer) in 2005 to 6.75 percent in 2007, to be shared by the employer and the employee. For pensioners of the CNSS, contributions (0% in 2005) will likewise increase and will be capped at 4 percent of income in 2009. For workers and unemployed social beneficiaries, these rates will be implemented progressively on a three- to five-year period. In the public sector regime (CNRPS) premiums will start at 2 percent of salary on July 1, 2005 (1 percent paid by the employer – the government – and 1 percent paid by the employee), and increase to 6.75 percent in 2007 (4.0 percent employer and 2.75 percent employee).

Whether 6.75 percent of salary is the right contribution level for the long-term financial sustainability of the CNAM is an open question. The CRESS has conducted a series of actuarial studies that show financial sustainability over a 15 year time period with this contribution level, but it is possible that a variety of upward pressures on health spending – mentioned above – will create a financial disequilibrium for the CNAM. It is also unclear what impact the contribution rate might have on overall economic growth.

The government should carefully consider the level of payroll taxes envisioned to finance the CNAM.

Given the relatively high mobility of workers and firms between the formal and informal labor sectors in Tunisia, mandating participation does not by itself ensure increasing or even maintaining enrollment and revenues. If there is a gap between the perceived costs and benefits of participation, Tunisia may experience widespread evasion of the health insurance payroll taxes, which would lead to wider tax evasion beyond the health sector.

Currently only 87.4 percent of people who should be contributing to health insurance really contribute. It is essential that government address the tax evasion issue. The following solutions might be considered: make sure that the SHI package is more attractive than the AMG; make health services available for informal workers, which may not be the case in rural areas; ‘market’ the reform and communicate its advantages; implement innovative techniques in order to collect the contributions of informal workers (assessment of their income on the basis of property, payment of flat-rate contributions instead of a percentage of their income); and strengthen the control of access to the AMG system.

Moreover, the distribution of beneficiaries among the three reimbursement schemes is very difficult to forecast and will significantly influence the level of expenditure of the CNAM. For these reasons, additional precise actuarial studies covering a variety of scenarios for the proposed reform are highly recommended – in order to assess both the financial impact of the reform and the level of the contribution rate necessary to cover costs.

It is also important to point out that, as coverage expands to cover informal sector workers, the social security system will almost certainly require a cross-subsidy from general government revenues – since many segments of the Tunisian population will not be able to fully support the cost of their health care. Subsidization of social security through general tax revenues is also critical for ensuring the equity of the financing system. Health systems that rely primarily on payroll taxes face problems of inequities in financing, since taxes are fixed as a proportion of salary and the amount of salary taxable is typically capped. The level of this cap will strongly



affect the equity of the new system in Tunisia; however, regardless of the level, it will be important to accurately project and plan for the additional subsidy necessary as the social security system continues to expand its coverage.

Finally, no financing scheme will be sustainable without the definition of an appropriate cost control strategy. The key elements of this strategy will be the content of the contract between the CNAM and the providers (level of the price index, rights and obligations of providers, possible sanctions), the composition of the benefits package, and levels of co-payments, as well as the establishment of mechanisms for the eventual adjustment of these key parameters, which will affect utilization, costs, and revenues.

### ***Adverse Selection and Financial Protection for the Poor***

As currently designed, the reforms may lead directly to a serious problem of adverse selection among the three different schemes (*filiales*), as private providers might try to attract wealthy patients to join the private sector scheme, especially if they think that the contractual tariffs are too low. Indeed, they could ask their patients for additional out-of-pocket payments to compensate this ‘insufficient’ level of remuneration, even though this is prohibited by the law. Poor patients would then tend to stay in the public system.

For these reason, and because of the administrative complexity imposed by the three different schemes, it may also make sense to start the new health insurance system with only one scheme rather than the three envisioned in the reforms. Instead, different tariffs and/or levels of co-payment could be defined for certain services depending on whether they are provided in the public or private sector. This solution would be much more simple to implement and flexible than the three schemes scenario, while giving the government the same possibility to influence the situation in terms of health care provision.

A related point is that, as the importance of individual and household-level expenditures for health care increases relative to institutional and third-party spending, the health system will need to take measures to ensure financial protection for its beneficiaries – meaning that not only do individuals have access to the health services that they need, but also that paying for these services does not jeopardize other essential household spending.

### ***Quality and Performance of the Public Service Delivery System***

*Ensure Quality of Care.* In order to make further progress in improving quality of care, Tunisia will need to recognize the fact that much of the existing structure and organization in the public system is not optimal from that perspective. The current system of rigid civil service rules, centralized decision-making (despite the somewhat increased autonomy of secondary and tertiary care hospitals), and the use of global budgets and salaried doctors give few incentives to provide good quality of care. In addition, there is a need to enhance accountability related to quality of care. Creating such incentives and accountability is likely to require a combination of both organizational and provider payment reforms, and, preferably, a change in civil service rules – none of which will be easy to accomplish.

*Develop a National Health Master Plan.* A health master plan is a useful tool to plan and allocate health resources in both the public and private sectors, which may entail health facilities, manpower, and medical equipment. Such a plan requires the establishment of national health guidelines and standards; analysis of the population’s socioeconomic status, demographic and epidemiologic profiles, and health needs; and mapping the existing health infrastructure and its

utilization in order to reconfigure the existing infrastructure and identify the location and level of future investments.

*Improve Allocative Efficiency.* The concept of allocative efficiency – ensuring that health dollars are spent in such a way as to maximize health outcomes – is closely related to the allocation of resources and the health master plan discussed above. To improve allocative efficiency to meet Tunisia’s evolving health needs, the hospital sector is also in need of restructuring and rationalization, in terms of the size, level, and type of services offered. Local hospitals have approximately 17 percent of the total bed stock in the public sector, and a very low occupancy rate of 35.9 percent.

*Strengthen Information Systems.* Currently, public sector providers are not well prepared to use information to adapt to technological change and the realities of Tunisia’s epidemiologic and demographic transition. There is a growing need in the health sector for information technology. The implementation of the proposed reforms will require extensive investments in information systems – to manage the affiliations and the reimbursements and also to monitor expenditures and quality of care. A related priority will be in-depth training for future health insurance managers to manage relatively complex information systems.

*Ensure Adequate Administrative Capacity within the CNAM.* The success of the reforms will depend crucially on the administrative capacity of the CNAM. As a result, one of the key tasks early in the implementation of the reforms will be to ensure that the CNAM has adequate skills and capacity in several key areas, including payment mechanisms, actuarial expertise, and claims review.

## **NEXT STEPS**

As Tunisia enters into the significant health reforms planned, a series of additional studies will be very useful in making key policy decisions. Among the essential studies and preparatory steps that should be completed are the following (described in more detail in Section 7 of the report):

- Carry out a study of the economic impact of the payroll tax for health insurance
- Conduct actuarial studies
- Analyze the relative benefits and financing burdens of the proposed system
- Define a cost control strategy
- Define the benefits package
- Establish hospital reimbursement rates to encourage both productivity and efficiency
- Address adverse selection and ensure financial protection for the poor
- Develop a National Health Master Plan
- Strengthen Information Systems
- Ensure Adequate Administrative Capacity within the CNAM.

## **1. INTRODUCTION**

Although the Tunisian health sector is performing very well in many ways, particularly in comparison to the other Maghreb countries and the rest of the region, significant challenges remain. As Tunisia traverses the epidemiological transition, the health sector is faced with a changing burden of disease, characterized by an increasingly aging population, and a growing prevalence of chronic diseases and accidents, which present considerable and growing challenges to the health sector. Furthermore, the availability of sophisticated medical technologies and expensive treatment modalities are creating pressures on the public system, which are increasing health expenditures, both in nominal and real terms. In addition, a largely unregulated private sector is rapidly augmenting the proportion of total health expenditures from private sources, resulting in reduced financial risk protection from the currently existing health care financing system. Currently, more than half of the physicians (general practitioners and specialists), 15 percent of hospital beds, and almost all pharmacies are in the private sector, where there is also a rapid expansion of high technology services, including medical imaging.

These challenges motivated a response and were the origin of health insurance reform, approved on August 2, 2004, which established a unified health insurance system.

This joint Tunisian/World Bank Health Sector Review provides an overview of the Tunisian health care system, assesses its performance in terms of efficiency and quality of health service delivery, examines the equity and access to care, as well as the sustainability of the health care financing system. The report also presents future challenges, including the ones related to the health insurance reform. Options for future sector improvements are also discussed.

The remainder of this report is divided into six sections. Section 2 briefly presents Tunisia's socioeconomic situation while section 3 provides an overview of its demographic and epidemiological profiles. Section 4 is a brief overview of the health care system including its organization, delivery system, and health financing and expenditures. Section 5 provides an analysis and assessment of the performance of the health care system in terms of efficiency, equity and access, and quality. Section 6 provides an overview of the different health sector reforms including health insurance reform. Finally, section 7 provides a unified strategy for implementing the health insurance reform and improving the performance of the health care system.

## 2. TUNISIA'S SOCIOECONOMIC SITUATION

Tunisia is a 163.6 square mile North African, lower-middle-income country. The 2003 population was 9.9 million, of which 63 percent inhabited urban centers. Despite continuing tensions in Iraq and elsewhere in the Middle East, Tunisia's gross domestic product (GDP) is estimated to have grown by 5.0 percent in 2003, due in part to favorable agricultural growth and increased tourism. Although still faced with an unfavorable external environment, a full recovery and continued economic growth is projected for the coming years, with GDP rising to 6.0 percent if the agricultural sector rebounds from three years of drought and if exports, particularly agriculture and manufacturing, continue to recover, and if tourism stabilizes. Fiscal policy was tightened in 2002 to prevent a deterioration of the external balance in the face of external shocks. In the 2003 budget, fiscal consolidation was pursued to decrease the budget deficit.<sup>1</sup> The GOT is expected to adhere to its course of maintaining fiscal stability and continuing trade liberalization while preserving social and political stability.

**Table 2.1. Economic Indicators<sup>2</sup>**

	1998	2001	2002
Total Population (Million)	9.3	9.7	9.8
Population Growth (Annual Percent)	1.3	1.1	1.1
GDP (Current USD Billion)	19.8	20.0	21.0
GDP Growth (Annual Percent)	4.8	4.9	1.7
GDP Per Capita (Current USD)	2,123	2,065	2,149
External Debt (Percent of GDP)	56.5	60.2	61.0
<i>Source: World Development Indicators, 2006. The World Bank.</i>			

Administratively, Tunisia is composed of seven regions, which are further divided into 24 governorates. Each governorate is divided into districts (*délégations*). The total number of districts is 262; the districts are further subdivided into 2,067 sectors (Table 2.2.).

**Table 2.2. Administrative Organization**

Region	Governorates			
District of Tunisia	Tunis	Ariana	Ben Arous	Manouba
North East	Bizerte	Nabeul	Zaghuan	
North West	Beja	Jendouba	Kef	Siliana
Central East	Souse	Monastir	Mahdia	Sfax
Central West	Kairouan	Kasserine	Sidi Bouzid	
South West	Gafsa	Tozeur	Kebili	
South East	Gabes	Mednenine	Tatouine	

<sup>1</sup> Statistical Indicators on Tunisia, National Statistical Institute of Tunisia, <http://www.ins.nat.tn>, World Development Indicators database, August 2003, Social and Economic Development Group, Middle East and North Africa Region, World Bank, Tunisia, Economic Monitoring Update—September 2003.

<sup>2</sup> World Development Indicators database, World Bank, February 2002; International Monetary Fund (IMF) Tunisia Country Information.

## 2.1. Poverty

### 2.1.1. Poverty trends in Tunisia

The poverty rate is determined by household consumption, budget, and quality of life surveys. According to this indicator, poverty has regressed in Tunisia since 1980. Data from various surveys show that the absolute numbers of poor people have decreased significantly, from 823,000 in 1980 to 399,000 in 2000.

Until the 1980s, the poor population was more concentrated in the rural areas of Tunisia. In 1980, 62.3 percent of the total poor population resided in rural areas. During the 1990s, this trend was reversed. In 1995, 69 percent of the total poor population lived in urban areas. This reversed trend has continued and as of the year 2000, 64 percent of the total poor population lived in urban areas. As for the poverty rate, it decreased to 4.2 percent in 2000, compared to 6.7 percent in 1990 and 12.6 in 1980. Poverty has therefore significantly decreased in the second half of the 1990's, after a stable period between 1985 and 1990.

**Table 2.3. Tunisian Poverty Indicators (Percent)<sup>3</sup>**

	1995	2000
<b>Poverty Headcount Ratio at USD 2 per Day (PPP)</b>	12.7	6.6
<b>Poverty Gap Ratio at USD 2 per Day (PPP) (Incidence and Depth of Poverty)<sup>4</sup></b>	3.1	1.3
<b>Tunisian Official Poverty Rate</b>	6.2	4.2

*Source: National Household Consumption and Budget Surveys, INS (1995, 2000).*

**Table 2.4. Incidence of Poverty in Tunisia<sup>5</sup>**

	1980	1985	1990	1995	2000
<b>Total number (in thousands)</b>			544	559	399
<b>Urban</b>			354	389	296
<b>Rural</b>			190	170	103
<b>Poverty Rate (%)</b>	12,9	7,7	6,7	6,2	4,2
<b>Urban</b>	11,8	8,4	7,3	7,1	4,9
<b>Rural</b>	14,1	7,0	5,7	4,9	2,9

*Source: National Household Consumption and Budget Surveys, INS (1980, 1985, 1990, 1995, 2000).*

Moreover, the portion of the population that lives on less than a dollar a day was reduced from 1.5% in 1990 to 0.5% in 2000. As for the population living with less than two dollars a day, the percentage stabilized at about 6.7% in 2000 against 12.7% in 1995.

### 2.1.2. Economic inequities and poverty

The analysis of the trend and distribution of income allows for the evaluation of the efficacy of economic growth efforts compared to the national objectives of poverty reduction. The process of economic growth

<sup>3</sup> World Development Indicators database 2005, The World Bank, Statistical Indicators on Tunisia, National Statistical Institute of Tunisia, <http://www.ins.nat.tn>.

<sup>4</sup> The poverty gap is the main shortfall from the poverty line (counting the non-poor as having zero shortfall), expressed as a percentage of the poverty line. This measure reflects the depth of poverty as well as its incidence.

<sup>5</sup> Ibid.

and the equal distribution of its benefits will obviously positively influence the progression of income and therefore the reduction of inequities and poverty as well.

The Gini coefficient is calculated on the distribution of household consumption data and provides information about poverty trends and regional distribution. The Gini coefficient remained around 0.4 and the share of the expenditures of the poorest quintile increased only very minimally. Between 1990 and 1995, the Gini coefficient for urban areas worsened slightly, but the one for rural areas remained unchanged. Inversely, between 1995 and 2000, the Gini coefficient worsened slightly in rural areas and remained unchanged in urban areas.

The Gini indicator does not reveal disparities in the structure of expenses, even though a value of 0.4 indicates a slight concentration of income distribution. National household consumption and budget surveys of 2000 show income distribution between different strata of the population, with the richest 20 percent accounting for 47.3 percent of the total consumption compared to the poorest 20 percent accounting for only 6.9 percent of the total consumption. In addition, the mean expenditures of the richest 10 percent are six times greater than the poorest 10 percent.

**Table 2.5. Per capita Annual Expenditures by region (2000)**

Region	Per capita Annual Expenditures richest 10% (in dinars)	Per capita Annual Expenditures poorest 10% (in dinars)	Ratio of per capita Annual Expenditures for richest 10% to the poorest 10% of the Centre-West Region
District of Tunis	3317	584	11.4
North-East	2180	401	7.5
North-West	1983	398	6.8
Centre-West	1715	291	5.9
Centre-East	3005	508	10.3
South-West	1827	351	6.3
South-East	2059	359	7.1
Total	2537	412	8.7

*Source: National household consumption and budget surveys INS 2000.*  
*Note: Gini's index measures the degree of concentration of statistical distribution, its value varies between 0 and 1, and an index close to 1 indicates a concentration of distribution (unequal distribution).*

The mean level of expenditures per person in the richest 10 percent stratum in the Tunis District is 3,317 TND compared to the Center-East district, where it is 3,005 TND. This represents 11.4 times and 10.3 times the mean expenditures of the poorest 10 percent of the Center-West, respectively. These figures also represent almost double of the expenditures of the richest 10 percent in the Center-West area. This ratio explains to some extent the reasons of the migratory flow from the Center-West to the costal areas.

## **2.2. Labor Market**

Unemployment in Tunisia remains high, particularly among the young. Total unemployment in 2004 was 13.9 percent.<sup>6</sup> Unemployment among youth aged 15 to 24, however, ranged between 30 to 40 percent. Furthermore, youth aged 20 to 24 with secondary or post-secondary education had the highest unemployment rate reaching above 40 percent in 2001.<sup>7</sup> Just over half (51 percent) of the working-age

<sup>6</sup> Statistical Indicators on Tunisia, National Statistical Institute of Tunisia, <http://www.ins.nat.tn>; World Development Indicators database, August 2003.

<sup>7</sup> Republic of Tunisia Employment Strategy, Vol. I: Main Report, 28 June 2003, Middle East and North Africa Human Development Sector (MNSHD), p. vi, Employment survey 2001, INS.

population (ages 15-64) is active in the Tunisian labor force.<sup>8</sup> Even though men have much higher participation rates than women, male participation rates are lower among the educated groups compared to those among women. Rural unemployment remains highest overall.

**Table 2.6. Unemployment Rates (Percent)<sup>9</sup> (1997 to 2001)**

	1997	1999	2000	2001
<i>By age</i>				
Total – (15 – 64 years)	15.9	16.2	15.9	15.3
Age group (18 – 59 years)	15.7	15.8	15.6	15.0
<i>By residence</i>				
Urban	15.0	15.1	15.6	15.4
Large Cities	15.3	14.7	15.6	14.4
Other Urban	14.8	15.5	15.6	16.2
Rural	17.5	18.0	16.4	15/1
<i>By sex and residence</i>				
Female	17.4	16.9	16.5	15.9
Male	15.5	15.9	15.7	15.1
Rural male	17.2	18.2	16.8	15.4
Rural female	18.7	17.4	16.4	14.3
Urban male	14.5	14.6	15.1	14.9
Urban female	16.6	16.7	17.2	16.7
<i>Note: includes potential and marginal unemployment</i>				

### 2.3. Water, Sanitation, and Electricity

Access to a safe water supply (77 percent of the population is connected to the public water system) and adequate sanitary facilities fall below the average MENA level, except for access to sanitation in urban areas. In rural areas, the proportion of people with access to an acceptable water source was 82.6 percent in 2002, compared to 100 percent in urban areas (mostly through the public water system); 96% of sanitary installations are conforming to hygienic standards.

The daily water consumption is about 75 liters a day per capita<sup>10</sup>, and drinking water accounts for approximately 20 percent of all water usage; that is 15 liters/person/day.

**Table 2.7. Access to Sanitation and Safe Water<sup>11</sup>**

	Tunisia	MENA	World
Sanitation (Percent of Population with Access)	84	85	55
Sanitation (Percent of Rural Population with Access)	62	72	37
Sanitation (Percent of Urban Population with Access)	96	94	81
Water (Percent of Population with Access)	80	88	81
Water (Percent of Rural Population with Access)	58	78	71
Water (Percent of Urban Population with Access)	92	96	94
<i>Source: World Development Indicators, 2005. The World Bank.</i>			

<sup>8</sup> Tunisian authorities define the working-age population as ages 18-59. The labor force participation rate among this group is 56 percent.

<sup>9</sup> Republic of Tunisia Employment Strategy, Vol. I: Main Report, 28 June 2003, Middle East and North Africa Human Development Sector (MNSHD), Table 16, Source: Employment Surveys, INS.

<sup>10</sup> World Health Organization and United Nations Environment Programme, 2003.

<sup>11</sup> The World Bank. World Development Indicators: <http://publications.worldbank.org/supcriptions/WDI/>.

In 2001, 95.4 percent of Tunisian households had access to electricity. In 2002, access to electricity increased slightly to 95.9 percent of households.<sup>12</sup> About 80 percent of households are homeowners and only 3 percent of homes are classified as rudimentary. Sanitation is below hygiene standards for a quarter of homes, especially in sparsely populated rural areas in the Northern, Western, and Center-South governorates.

## 2.4. Status of Women

According to the UNDP's Program for Governance in the Arab Region, the personal status of women in Tunisia is generally equal to that of men. Since independence in 1956, the GOT has sought to achieve gender equality through reforms in the areas of marriage, divorce, child custody, and women's social autonomy. Reforms, implemented in 1993, brought Tunisian law into accordance with international human rights standards. Physical and emotional abuse of women (children and other vulnerable groups) cannot be quantified but is no longer a taboo topic.

Life expectancy at birth is 75 years for women, which is higher than for men. In addition, life expectancy after the birth of the last child is 35 years.

In 2004, Women held 15 percent of the ministerial-level positions in government (2 ministers and 2 State secretaries), and a number of national institutions deal with women's issues.<sup>13</sup> In 2003, women held 11.5 percent of the total seats in parliament.<sup>14</sup> In education, the achievement of women has shown steady improvement in the past decades, with female literacy increasing steadily since 1980. In 2002, however, 31 percent of adult women remained illiterate.<sup>15</sup>

The MDG education target of universal primary education is well within Tunisia's grasp. The net primary enrolment ratio between 2000 and 2001 was estimated at 99 percent<sup>16</sup>.

**Table 2.8. Illiteracy Rates in Tunisia, 1998-2002<sup>17</sup>**

	1998	1999	2000	2001	2002	MENA 2002	World 2002
Adult female (percent of aged 15 and +)	42	41	39	38	37	45	29
Adult male (percent of aged 15 and +)	21	20	19	18	17	24	16
Adult total (percent of aged 15 and +)	32	30	29	28	27	35	22
<i>Source: World Development Indicators, 2005. The World Bank.</i>							

Tunisia has long taken a progressive position on women's participation in the workforce. Maternity leave policies and employment protection for mothers were established in 1966.

<sup>12</sup> Statistical Indicators on Tunisia, National Statistical Institute of Tunisia, <http://www.ins.nat.tn>.

<sup>13</sup> <http://www.pogar.org/countries/tunisia/gender.html>.

<sup>14</sup> UNDP, Human Development Indicators, 2003.

<sup>15</sup> The World Bank, Tunisia Country Brief.

<sup>16</sup> The Human Development Report, 2003, Human Development Indicators, Tunisia.

<sup>17</sup> [http://hdr.undp.org/reports/global/2003/indicator/cty\\_f\\_TUN.html](http://hdr.undp.org/reports/global/2003/indicator/cty_f_TUN.html). The Millennium Development Goals in Arab Countries: Towards 2015: Achievements and Aspirations, UNDP, New York—December 2003.

<sup>17</sup> The World Bank. World Development Indicators: <http://publications.worldbank.org/supcriptions/WDI/>.



### 3. DEMOGRAPHIC AND EPIDEMIOLOGIC PROFILE

Tunisia's current population and epidemiological profiles are a result of the demographic and epidemiological transitions that characterize most middle-income countries.

The population growth rate has decreased significantly over the past decade from 1.47 percent in 1996 to 1.1 percent in 2003. The decrease in the population growth rate indicates major changes in the age structure of the population. According to the most current published statistics in 2001, 62 percent of the population were in the age group 15 to 59 years, 28.9 percent were under 15 years, and 9.1 percent were over 60 years. For health planning purposes, it is worth noting that 56.2 percent of all women—2.7 million women—were in the reproductive age group of 15 to 44 years.

#### 3.1. Demographic Profile and Trends

##### 3.1.1. Population and family planning

**Policy Development.** Tunisia has a long history of not only population and family planning but of concern for the health of mothers and children. After independence in 1956, one of the early acts of then President Habib Bourguiba was to abolish polygamy (in 1957) and, with the support of the UNFPA, establish a Family Planning Program (FPP), which laid an early foundation for effective population and family planning. These efforts were further boosted in the 1960's by the creation of the Center for Maternal and Child Health and by the National Perinatal Program in the early 1990s, which have served as successful mechanisms to reduce both maternal and infant mortality. This in turn led to the reduction seen in total fertility and a corresponding reduction in population growth, which is particularly impressive compared to the other Maghreb countries. Morocco, for example, had approximately the same population size of Tunisia in 1960 but today the population of Morocco is three times higher.

Family planning in Tunisia, however, is not only concerned with population control, but rather addresses all aspects of reproductive health: maternal care, monitoring of maternal and infant health, registration of cancers related to reproductive organs, infertility, and adolescent health. It is also seen as a mechanism for improving the status of women.

**Provision of Family Planning Services.** Family planning (FP) services are typically carried out by midwives, working in the public sector: Ninety percent of all PHCs offer family planning services by a midwife, as do local hospitals (gynecological and obstetrics services). Each region has at least one Regional Center for Education and Family Planning (RCEFP), which serves as the reference organization for implementation of the ambulatory FP services, and the IEC (information, education, and communication) services.

The annual report for 2002 of the National Office of Family and Population revealed that approximately 52 percent of all Tunisian women (aged 15 to 45) use modern contraceptive methods, with an additional 10 percent using other methods, thus making a total rate of approximately 65 percent.<sup>18</sup> As depicted in Figure 3.1, this is among the highest rates in the MENA region.

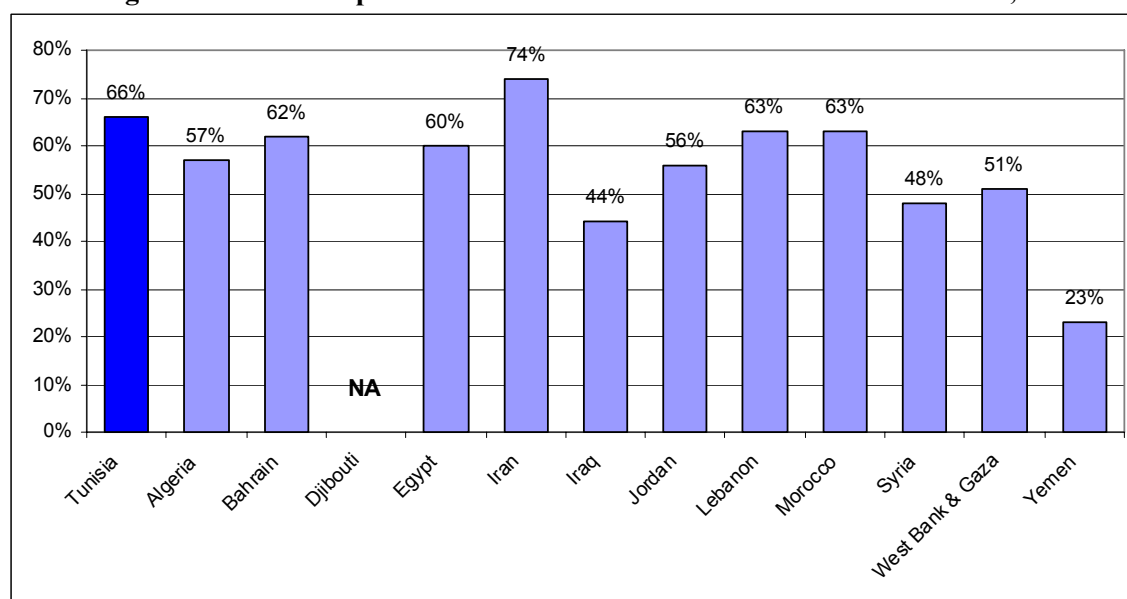
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<sup>18</sup> NIPH (2002): Health and Health Utilization Survey 2000-2001.

As a consequence of the successful FP services and programs, which initial goals were birth control and family planning but were later expanded to broader reproductive health services, the total fertility rate (TFR) has decreased steeply over the past decades, from 3.4 in 1990 to just over 2.5 in 1996 to 2.0 in 2003, which is below the TFR “replacement level” of approximately 2.1. There are however wide variations in the TFR across regions and governorates.

In 2003, the crude birth rate (CBR) in Tunisia was 16.7 per 1,000 population; it has steadily decreased over time from 19.7 in 1996, and 25.2 in 1990. The governorate with the lowest CBR in 2001 was Tunis, and the one with the highest was Kasserine. Regionally, the Central West region had the highest CBR, and the District of Tunis the lowest.

**Figure 3.1. Contraceptive Prevalence Rates of Selected MENA Countries, 1995-2003**



Source: UNICEF – At-a-Glance Statistical Website (DHS, MICS, UN Population Division, and UNICEF).

In a medium scenario, the GOT projects that the Tunisian population will increase to 10.4 million in 2009, 10.8 million in 2014, and 11.8 million in 2029. Even though the fertility level has decreased to a level below replacement, the Tunisian population will continue to grow over the coming decades. This is due primarily to the “population momentum” as those born between 1985 and 1989 will enter their reproductive ages and secondarily to the increased life expectancy.

Over the next decades, the population will become increasingly old both in terms of the number of elderly people and in the percent of the total population. As the absolute number of infants and children will not decrease over the next fifteen years due to population momentum, the pressure on the health system to provide services for all these age groups will lead therefore to increased demand for preventive and curative health services.

## 3.2. Epidemiologic Profile

### 3.2.1. Causes of mortality

**Overall mortality.** Table 3.1 provides the most frequent causes of mortality. Overall, diseases of the circulatory system (e.g., cardiovascular disease) account for the largest percentage, with women having

slightly higher rates than men. The second most common cause of death is cancer, followed by violence and respiratory diseases.

The causes of death vary with age: perinatal mortality and malformations represent the largest cause of mortality among children under 5 years of age. For age groups between 5 and 35 years, violent deaths, principally accidents (approximately 40 percent) are the leading cause of death; while among the 45 and older age group, cancers and circulatory disease are the main causes of death.

**Table 3.1. Principal Causes of Mortality, 2000**

Most Frequent Causes of Death	Males	Females
Circulatory System Diseases	27.0	31.0
Cancers	18.0	14.0
Respiratory System Diseases	10.5	7.2
Perinatal Causes	7.8	8.7
Metabolic and Endocrine Diseases	7.1	7.2
Violent Deaths	10.5	7.2
<i>Source: MOPH Statistics, 2000.</i>		

**Maternal and under-five mortality.** The maternal mortality ratio (MMR) was 70 per 100,000 population for Tunisia in 1994 based on the last maternal mortality survey. According to MOPH officials, MMR was estimated at 50 per 100,000 population in 2003, based on reports from MOPH health facilities (not confirmed by any surveys). Compared to other MENA countries, Tunisia's MMR is relatively low, but the ratio is not as low as ones for some of gulf countries. It is twice as high in rural areas, in the western part of the country (>90), and in the coastal areas. Maternal deaths occurring during and after delivery represent 70 percent of the total.

Another outcome of the Tunisian emphasis on reproductive health has been a significant improvement in infant and under-five child mortality rates. The Tunisian infant mortality rate (19 per 1,000 live births) was well below the MENA average (43 per 1,000 live births) and other lower-middle-income countries (31 per 1,000 live births). The objective to reach the Millennium Developments Goals (UN/WHO) is an IMR of 13 per 1,000 by 2015.

In line with the decline in infant mortality, under-five child mortality has also declined dramatically from 52 (per 1,000 live births) in 1990 to 24 (per 1,000 live births) in 2003; it is currently among the lowest levels in the region.<sup>19</sup> Tunisia is, not surprisingly, on track to achieve the under-five child mortality rate MDG (under-five mortality of 16 per 1,000 by 2015). Indeed, these trends of infant mortality and analysis of its causes show that about 50 percent are associated with a respiratory or intestinal infection, which indicates that this is a realistic objective.

### 3.2.2. Morbidity analysis

In order to clearly present these data, this section has been divided in two parts: the first one gives an overview of problems mainly affecting the adult population; the second part describes the situation in vulnerable groups, such as mothers and children, teenagers, and workers.

<sup>19</sup> The Human Development Report, 2003, Human Development Indicators, Tunisia.  
[http://hdr.undp.org/reports/global/2003/indicator/ctv\\_f\\_TUN.html](http://hdr.undp.org/reports/global/2003/indicator/ctv_f_TUN.html). The Millennium Development Goals in Arab Countries: Towards 2015: Achievements and Aspirations, UNDP, New York—December 2003.

### 3.2.2.1. Overview

#### ***1. Communicable diseases (excluding STD's)***

Within the context of the strategy for controlling communicable diseases, a notification, intervention, and surveillance system has been established and directed by the Directorate of Basic Health Services (*Direction des Soins de Santé de Base - DSSB*).

No indigenous malaria case has been reported since 1979. A few dozen cases (50 in 2002) were imported by Tunisian travelers (sportsmen, workers, businessmen), and foreigners (mainly students originally from endemic areas) are currently diagnosed and treated every year.

As for Tuberculosis, it has been targeted by a specific program, providing free treatment and prevention for the patient and the patient's family. Incidence was about 20 per 100,000 in 2003 and it has decreased regularly over time, with infantile and meningeal tuberculosis now being exceptional.

In addition, hydatid cysts (200 cases in 2003), brucellosis (250 cases), and mucocutaneous leishmaniasis (about 1,700 cases) have not been eradicated from their traditional endemic areas in the Center-West and South.

#### ***2. STD's and HIV/AIDS.***

The fight against AIDS is multidisciplinary as it involves primary care services, the school health department of the Ministry of Public Health, and national NGOs. A surveillance system has been in place since 1985, when the first cases were detected. From 1985 to 2002, there were 1,125 cumulative cases, of which 387 are deceased. In 2002, there were 188 new cases, of which 66 were Tunisians, divided into 45 males (68 percent of cases), 19 females (29 percent), and 2 children (3 percent) who were infected by their mother. Heterosexual contacts and intravenous drug injections, which apply mainly to Tunisians living abroad, are the two main routes of infection. Even though the number of cases has remained stable since 1990 (around 70 cases), it is important to remain vigilant mainly because of the growth of tourism and immigration (legal or clandestine) of people from endemic countries.

#### ***3. Problems specifically related to the epidemiologic transition***

Cardiovascular diseases. Several studies have focused on this problem in the last 20 years. The most recent ones were done by the National Institute of Public Health between 1996 and 1998 (on adult subjects by history and clinical examination) and in 2001 (on families, through a reference person, based on declared morbidity). Prevalence rates given below are based mainly on the 1996/98 study.

Hypertension.<sup>20</sup> Hypertension prevalence is estimated to be 38.4 percent among adults 35 to 64 years old, which is higher than in females, less educated people, or unemployed people (41.5 percent).

Diabetes.<sup>21</sup> Of adults aged 35 to 64, 9.8 percent suffer from diabetes. Prevalence is higher in females (10.6 percent) than males (9.1 percent). However, other studies have shown rates around 5 percent.

Obesity.<sup>22</sup> Obesity prevalence fluctuates between 15 and 16 percent among adults, with a higher rate in females than in males, and higher in urban areas. Pre-obesity ( $25 < \text{BMI} < 30$ ) is even more common, affecting one-third of people over 35 years.

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<sup>20</sup> Systolic Blood Pressure  $\geq 140$  mm Hg and or Diastolic Blood Pressure  $\geq 90$  mm Hg.

<sup>21</sup> Fasting glucose level  $\geq 7.8$  mm/l.

Cancer. 9,000 new cases have been reported by the registering system that was established in the early 1990's (regional registry for the North, Center, and South; national registry at the INSP) representing a crude incidence rate of 103 per 100,000 population in males and 78 per 100,000 in females. The standardized incidence rate is 127.5 in males and 93 in females.

According to the registry for the North, where reliable data exist for the period between 1995 and 1998, the most common cancers for males are lung (22 percent), bladder (10 percent), prostate (6.6 percent), skin (6.2 percent), stomach (5.2 percent), larynx (5.1 percent), non-Hodgkin lymphoma (4.5 percent), nasopharynx (3.2 percent), rectum (3 percent), and the colon (3 percent).

In women the most common cancers are breast (28 percent), cervix (6 percent), skin (5 percent), ovary (4 percent), colon (4 percent), non-Hodgkin lymphoma (4 percent), thyroid (3.6 percent), gallbladder (3.4 percent), and rectum (3.4 percent).

Cancer prevalence increases with age, reaching a maximum at 75 years. It doubles between 55 and 60 years and also between 60 and 75 years. In children (3 percent of total cancer cases) the most common cancers are leukemia, nervous system cancer, and non-Hodgkin lymphoma.

Chronic respiratory diseases. The prevalence of chronic pulmonary disease in adults over 25 is 5 to 6 times greater in males, with a rate around 4 and 10 percent, depending on the studies. About one-quarter of these have the obstructive type. Repeated hospitalizations were until recently the only treatment but alternate options are being put in place (such as home oxygen) with a foreseeable increase in health expenditures related to these pathologies.

As for asthma, prevalence varies according to the population studied and criteria used for diagnosis. Rates are between 1.7 percent and 6.5 percent. It is responsible for 1.3 percent of deaths (400 cases).

Mental health and psychiatric conditions. Among all the epidemiologic studies that focused on mental health and psychiatric conditions, a study done in 1995 by Zouhaier et al. and the WHO on 3,000 representative individuals is cited most often by specialists. According to this national study, 8.8 percent of respondents had experienced a major depressive episode in their lifetime and at least 26 percent had at least three depressive symptoms at the same time.

Women have a higher reported prevalence of mental illness with a rate of 3.1 percent compared to 1.9 percent for males. Other risks factors worth mentioning are age (increased risk amongst adult aged 15 to 65), low education level, employment concerns, and chronic organic diseases (47 percent of individuals with chronic diseases have some symptoms of mental illness).

In children and teenagers, autism prevalence is between 4 to 5 per 10,000 and anorexia nervosa is about 2 per 1,000. Due to increasing life expectancy (73 years at birth), dementia will most likely play an important role in Tunisia, like in Europe, where prevalence is 1 percent between 65 and 69 years and 30 percent over 90.

Tobacco use. Tobacco use is an important factor as it often causes or worsens many pathological conditions. In Tunisia, studies done in the late 1990s show that tobacco awareness campaigns have been relatively successful in informing the population of the risks and in influencing policies to increase tobacco prices. Nonetheless, one-third of the adult population (61.9 percent of males and 7.7 percent of females) still continues to smoke, with a higher prevalence among socially excluded youth and

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<sup>22</sup> Obesity is defined by a BMI  $\geq 30$  kg/m<sup>2</sup> and pre-obesity by  $25 \text{ kg/m}^2 < \text{BMI} < 30 \text{ kg/m}^2$ .

uneducated males. Tunisia's male smoking prevalence is one of the highest among MENA countries. In smokers, half the women and two-thirds of the males smoke over twenty cigarettes per day.

In the Tunisian context, Tobacco use is a significant risk factor associated with a number of diseases, including cardiovascular, pulmonary, endocrine, and metabolic. Cancer is the second leading cause of death in Tunisia, and evidence from numerous studies shows that smoking causes lung cancer and cancers of other organs, including the bladder, kidney, larynx, mouth, pancreas, and stomach.<sup>23</sup> Smokers also have three times the prevalence rate of hypertension than non-smokers or those who quit smoking.<sup>24</sup>

The use of tobacco is higher in the northern and eastern regions of the country, and it is in these same zones where the prevalence of the associated diseases is highest. Males represent 96.9 percent of smokers and 62.9 percent of them live in urban areas. More than 50 percent of smokers are men between the ages of 25 to 44 and 58.6 percent of them are workers, whereas only 2.7 percent of professionals smoke. Likewise, smokers usually have a lower educational level; nearly 60 percent of them have no more than a primary education. The rate of female smokers is particularly alarming and it is on the rise in urban areas.<sup>25</sup> Children exposed to second-hand smoke are at higher risk of asthma, and adult non-smokers face small increased risks of disease from exposure.

Cigarette smoking is the most frequent form of tobacco use in Tunisia. The onset of smoking is usually at less than 20 years old for males, but somewhat later for females. The use of the traditional *narguile*, or water pipe, is increasing, particularly among the young. Smoking cessation services exist in Tunisia and are supported by the Ministry of Public Health.<sup>26</sup> Nevertheless, greater action is needed to reduce tobacco use among males and to reduce and prevent the rising prevalence among females, and particularly among the youth.

### 3.2.2.2. Special population groups

**Maternal and child health.** Vaccination and surveillance programs have helped control several communicable diseases influencing maternal and child health. The most notable successes have been the result of vaccination programs:

- Polio and measles eradication and the control of measles
- Neonatal tetanus (0 cases in 2002 and 2003).

Incidence of Protein Energy Malnutrition (PEM) is 3.7 percent between 3 and 5 months and 1.8 percent between 12 and 23 months. The degree of severity is moderate in most of the cases. In addition, about 1 percent of children between 1 and 2 years old are overweight.

About 1 percent of children have some development delay affecting speech in one-third of the cases, motor skills (21 percent), vision (16 percent), and 10 percent have mental retardation.

Data on anemia, which has been studied at different periods and more recently in 2000, show that prevalence remained stable. About one-third of women and a quarter of children under-five are affected, pregnancy being a risk factor. Sever forms are rare and account for 1 percent of cases.

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<sup>23</sup> Tobacco: Health Impacts and Economics in the Middle East and North Africa Region, The World Bank, June 2002, p. 10.

<sup>24</sup> Ibid, p. 106.

<sup>25</sup> Ibid, p. 455.

<sup>26</sup> Aouina, H., El Gharbi, L., Fakhfakh, R., Aissa, I., Azzabi, S., Baccar, M.A., Bouach, H. Aide au sevrage tabagique en Tunisie: experience d'un service de pneumologie, International Journal of Tuberculosis and Lung Disease, 6 (12), 2002, p. 1124.

**Adolescent Health.** According to a 1995 study done on a representative sample of 4,500 high school students, most of their complaints are unspecific and psychosomatic (fatigue, back pain, headaches, dysmenorrhea, sleep disturbance).

Some risky behaviors are more prevalent in adolescents than in the general population. Examples of common risky behaviors are physical violence (mostly at school), unauthorized driving of motor vehicles, and alcohol abuse (20 percent of adolescent tried alcohol at least once).

### 3.2.2.3. Disability

Disability prevalence varies according to the sources but is between 0.91 percent (INS population employment study 1999) and 1.7 percent (from statistics of the Ministry of Social Affairs based on the number of disability cards given from 1982 to 2000). All the sources agree that disability prevalence is higher in western northeastern areas, rural settings, and in age groups between 15 and 20 (two-thirds of the cases), and above 50 (22 percent). Disability occurs at birth in half of the cases, after a chronic illness in 36 percent of cases, and after an accident in 17 percent of cases.

**Workers Health.** In 2002, there were 50,262 work-related injuries (1 per 40,000 workers) of which 275 were fatal, being responsible for about 1.6 million days of work lost. Higher incidence rates (over 50 per 1,000 workers) are found in construction and transformation industries. About two-thirds of these injuries are due to trauma and mainly involve extremities such as the hand (31 percent) and the foot (16.5 percent).

In addition, about 400 cases (405 in 2002) of professionally related illness are reported every year, with the most common complaints being deafness (30 percent), musculo-skeletal problems (23 percent), lead intoxication (15 percent), respiratory (12 percent), and skin (12 percent) diseases.

**Table 3.2. Reported Prevalence of Selected Chronic Diseases (Percent)**

Disease	Overall Prevalence	Prevalence for Women	Prevalence for Men
Cardiovascular Disease	16	20	12
Hypertension	11	15	7
Endocrine and metabolic diseases	12	16	7
Diabetes (20+years)	4.4	5	3.7
Bronchial	3.1	2.6	3.5
Asthma	1.4	1.4	1.4
Source: MOPH Statistics, 2001.			

The data reported in Table 3.2 suggest that considerable disease burden is due to chronic diseases, especially considering that only 9 percent of the population was over 60 years of age in 2001. This is in fact confirmed in a study of the Burden of Disease (BOD) in Tunisia, which found that there are 1.45 million DALYs lost, of which men accounted for 52 percent and women for 48 percent. Of the total DALYs lost, 53 percent were due to premature death and the remainder to disability, indicating that disability plays a large role in the total BOD in Tunisia. Fifty-eight percent of the BOD is due to non-infectious diseases and accidents, which is typical for a middle-income country going through an epidemiological transition. Please note, however, that this study relies on fairly old (1992) mortality and somewhat limited disability data, thus the results should be interpreted with care. The qualitative conclusions, nevertheless, should still be valid. In fact, the situation may be even worse today, as evidence suggests that chronic disease increases as middle-income countries progress through their epidemiological transition.

### 3.2.3. Public health challenges

**Epidemiologic summary.** According to the above data, it can be concluded that the following points are health priorities:

- Cardiovascular disease, including acquired or inherited metabolic risk factors (diabetes, hypercholesterolemia, obesity) and behavioral factors (tobacco, physical inactivity), which are widespread in the Tunisian population.
- Cancers, including female genital tract, and lung cancer for males
- Perinatal conditions and their consequences (because of disability) on the health of mothers and infants.
- Common infant pathologies, mainly recurrent infections of the respiratory or digestive tract, can affect the physical, mental, and motor development of children.
- Accidents and physical abuse that can have fatal consequences or can hinder productive labor temporarily or cause permanent disability.
- Chronic lung diseases, mainly asthma that can affect all age groups and which prevalence has been increasing because of pollution and changes in lifestyle.
- Psychiatric and psychosomatic pathologies often related to stress, affecting mainly urban young adults, who have to balance professional life, family obligations, well-being of the couple, and education of children.
- Endemic communicable diseases in recent past and potentially may be reintroduced, such as malaria, brucellosis, or leishmaniasis.
- Emerging communicable diseases (infectious, viral) with cyclic epidemics
- Sexually transmitted diseases and HIV/AIDS, which have recorded a growing number of cases each year. Surveillance efforts (pregnant women, immigrants) and IEC (high schools) should not be reduced but to the contrary reinforced.
- Oral pathologies, mainly in children and adolescents (caries, misalignment) but also in adults (teeth loss, gingival diseases).
- Food-borne illnesses, which requires rigorous monitoring in a country where tourism activities significantly contribute to the economy.
- Special attention must be given to populations with specific high risks. In that regard, rural population, in particular women and children, are at higher risk.

**Between “transition” and “emergence.”** Transition has several implications for Tunisia: a good number of formerly endemic diseases require continued efforts in terms of eco-epidemiologic surveillance in high-risk populations (travelers, migrants, special age groups, and certain work types) such as HIV/AIDS, poliomyelitis, or bilharziasis. . At the same time, citizens have rising expectation in terms of quality of basic services - such as vaccination, maternal and child health, school health services, or treatment of common illnesses.

Another feature of the transition applying to Tunisia is the emergence of health concerns that were not known or neglected. Emergence relates to a complex situation where epidemiologic facts interact with societal changes and individual behaviors. In this context, there are several expectations:

- Management of chronic diseases: this includes screening, follow up, and timely provision of effective treatments.
- Food safety of all levels of the food chain: raw products (e.g., meat and mad cow disease), processed foods (genetically modified foods), or meals served in public places.
- Care and rehabilitation of disabled people.
- Implementation of support systems (such as home care) to serve the elderly, whose number is continuously increasing and who require daily assistance because of disability or isolation.



## **4. OVERVIEW OF THE TUNISIAN HEALTH CARE SYSTEM**

### **4.1. Providers and Structure of the Health Care Delivery System**

Since independence, the “Public Health” aspect of the health problems has been approached through the implementation of mass campaigns and a network of health centers, which were mainly dedicated to curative care. After the Alma Ata conference (1978), these primary health centers progressively organized themselves around national health programs starting in 1981.

The MOPH health care delivery system is organized into three levels of care, as follows:

#### *4.1.1. Primary health care*

There are 2,028 primary health care centers (*Centres de Santé de Base - CSB*), which are nationally distributed with 1 CSB serving 4,822 residents on average in 2002. Almost 90 percent of the population lives less than 5 km away from a CSB. The first level of care also includes 118 local hospitals (*hôpitaux de circonscription*), and maternity centers (*maternités périphériques*). The operation of these structures is organized within 203 medical districts (*circonscriptions sanitaires*), which were redefined geographically and managed in a coordinated way by the local health teams. The total number of beds in the PHC facilities is 2,650 beds, which represent about 15.6 percent of the total beds in the public sector.

In 2002, there were 1,559 general practitioners, 10,365 paramedical staff, 223 dentists, and 91 pharmacists working at the primary health care level. They are relatively well distributed throughout the country, as equity is an important factor in this level of the health care system. This first level of health care integrates more than twenty national programs that are managed at the central level by the Directorate DSSB, the DMSU (*Direction de la Médecine Scolaire et Universitaire*), the DHMPE (*Direction de l'Hygiène du Milieu et de la Protection*), and the ONFP (*Office National de la Famille et de la Population*). The primary health care system is in charge of the prevention policy and is responsible for approximately half of the medical consultations of the country, 20 percent of hospital admissions and 20 percent of the deliveries.

The potential of the local hospitals is not sufficiently utilized because of the weak technical support, which limits diagnostic and therapeutic services. Financing of the primary health care system is based on generated revenues (approximately 30 percent of the operating budget, excluding salaries) and the government budget. The primary health care level accounts for 27 percent of health care expenditures but represents a vital part of the health care system. In addition, it is also responsible for a large part of the significant improvement of health indicators over the last few years, particularly for maternal and childhood health and infectious disease. The knowledge base and practical skills acquired by the staff in the field of public health and population-based health services create the right conditions for the primary health care level to play a key role in the efficient management of health challenges raised by the transition (chronic diseases, degenerative diseases, cancers, menopause, geriatrics, youth adolescent health). In addition, the primary health care sector is developing an innovative program to ensure quality of care and is engaged in an effort to promote “Family Medicine.” This should be accompanied by reforming the training in general medicine and a higher respect for this new specialty.

#### 4.1.2. *Secondary health care*

This level of care is provided by some 33 regional hospitals (RHs). They are generally located in the capital cities of the governorates and consist of a total of 5,750 beds (33.8 percent of all public beds) and around 600 physician specialists (30 percent of physician specialists in the public sector). There are no regional hospitals in the cities that have a university hospital such as Sfax, Monastir, Tunis, and Sousse. Despite generally satisfying technical support systems, health care provision at this level is marked by a lack of specialists, who generally are more attracted by academic careers in University hospitals or by private practice in the region of Tunis or the Central East. As a result, the secondary level of care is not effectively a referral level for primary health care centers. The second level of health care absorbs about 25 percent of public health expenditures. Almost all of its funding comes from its self-generated revenues and payments by social security (social health insurance).

#### 4.1.3. *Tertiary health care*

Tertiary care services are provided by 22 University hospitals (EPS) with a total capacity of 8,596 beds (50.6 percent of total public sector beds and 44.4 percent of all national beds). Seventy percent of the public health sector's specialists work in tertiary care and the technical capacity level is high. Although the majority of the heavy equipment is concentrated in these facilities, these hospitals are not as well supplied as the private sector. The tertiary level is also responsible for the training of medical and paramedical personnel. The competence level is high but the tertiary care system suffers from overcrowding because of the weakness of secondary level of care and by an increasing trend of competent personnel leaving for private practice, where revenues are much higher. This trend is alarming because it may affect the quality of supervision and of training of future practitioners. The tertiary health centers are financed through self-generated revenues, by payments made by health insurance, and by the State budget, which pays for staff salaries.

#### 4.1.4. *“Para public sector”*

The “para public sector” is poorly developed and remains secondary. It includes six ambulatory polyclinics of the National Social Security Fund (*Caisse Nationale de Sécurité Sociale - CNSS*), the independent medical services of a few national firms, and preventive occupational health services.

#### 4.1.5. *Private sector*

The private sector, which has been growing since 1990, employs 83 percent of the country's pharmacists, 72 percent of the dentists, and only 7 percent of the paramedical personnel. It owns a majority of the high-tech equipment. It is to a large extent financed by households and generates about half of the total health expenditures. With the health insurance reform, its expansion is probably going to increase.

### 4.2. **Health Care Coverage: Eligibility, Contributions, and Benefits**

#### 4.2.1. *Insurance schemes*

Like the delivery system, the Tunisian health care financing system is characterized by its diversity of sources. Households are the most important source of health care financing (49.4 percent), followed by state general revenues (26.6 percent), and social (and private) insurance (24 percent). While private and not-for-profit insurance companies exist, they account for a negligible proportion of overall expenditures.

Under the current financing system, which is to undergo reform (see Section 6 for a description and analysis of the proposed reform), two types of social security coverage exist and cover approximately 7

million persons (approximately 71 percent of the population). The CNSS provides health care coverage to 1 949 700 private sector employees, independent workers (i.e., the self-employed), and certain other categories, including students and the disabled.<sup>27</sup> The CNRPS (*Caisse Nationale de Retraite et de Prévoyance Sociale*) covers approximately 745 600 public sector employees and retirees (See Table 4.1).<sup>28</sup>

The poor, who are ineligible for either of these two schemes, are covered by one of two other schemes—the “Free Medical Assistance” (*Assistance Médicale Gratuite - AMG*) programs that were established in 1958, and subsequently revised in 1991 and 1998. Two types of AMG coverage are offered, depending on income and family size. The poorest receive free care, while the less vulnerable<sup>29</sup> receive care at greatly reduced fees,<sup>30</sup> after paying a 10 TND annual fee for the validation of their health care card. Both systems are publicly financed and are only available for care in the public sector. In 2002, there were approximately 160,900 beneficiaries (AMG1 recipients) receiving free care and 547,500 (AMG2 recipients) receiving reduced-price care.

Some categories of the population are entitled to free health services and hospital care in the MOHP facilities: beneficiaries of the National Aid program for poor households, aid program for person with disabilities and unable to work, and aid program for poor elderly.

Some households are entitled to free care if they meet the eligibility criteria, such as:

- No health insurance coverage;
- Average income (per person) equal or below the poverty level determined by the National Institute of Statistics; and
- No current or potential support from an active family member.

As previously stated, about 170,000 households were beneficiaries of free health care in 2005.

A category of the population is entitled to reduced fees for services in public health care delivery system under the following conditions. The annual income of the household must be below:

- The Minimum Guaranteed Salary (*salaire minimum interprofessionnel garanti - SMIG*) for a family of 1 or 2 persons;
- 1.5 times the SMIG for a family of 3 to 5 persons; or
- 2.5 times the SMIG for a family with more than five persons.

The beneficiary of reduced fees cannot benefit from one of the two social security systems and must not be able to enroll in one. About 548,000 households were beneficiaries of this program in 2005.

A database of the beneficiaries was developed by the Ministry of Social Affairs, Solidarity and Tunisians Abroad. The primary objectives of this database are the periodic and continued revision of the list of beneficiaries of the reduced-fee program and the follow up of the targeted populations with the aim of better orienting them towards the economic integration programs and improving their social protection coverage.

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<sup>27</sup> Approximately 890,000 private, non-agricultural wage earners; 73,000 agricultural wage earners; 155,000 self-employed non-agricultural workers; and 85,000 self-employed agricultural workers.

<sup>28</sup> Since 1998, certain quasi-governmental employees, such as employees in electrical and gas utilities and the transport sector, have also been covered by the CNRPS.

<sup>29</sup> The income threshold for AMG2 recipients is a function of both income and family size. For a family of 1 or 2 persons, the income level is set at the Minimum Guaranteed Salary (*salaire minimum interprofessionnel garanti - SMIG*), while for families of 3 to 5 persons, it is 1-1/2 times the SMIG, and for families of more than 5 persons, it is twice the SMIG.

<sup>30</sup> AMG2 recipients typically pay only 20 percent of the co-payment for services in public health care delivery system.

Since the different schemes CNSS, CNRPS, as well as AMG1 and AMG2 extend coverage to the insured as well as their spouse (if not covered elsewhere) and children (up to aged 16 years, unless a student or disabled), the actual number of beneficiaries is much greater than the number enrolled. In the absence of a person-specific beneficiary information system, it is difficult to determine the exact number of beneficiaries. Furthermore, AMG recipients are in theory only eligible for this coverage when they are ineligible for either of the two national social security (SS) schemes. In practice, however, many AMG2 recipients are also eligible for one of the two national SS schemes, but prefer the AMG2 system because it is less costly.<sup>31</sup> The preference for the AMG schemes is probably part of the reason that only 87.4 percent of those eligible for the SS schemes are actually enrolled (100 percent in the public sector, but only 84 percent in the private sector). Nevertheless, it should be noted that enrollment in the SS schemes has doubled since 1987, in part because of the expansion of eligibility to new groups.

#### 4.2.2. Contributions

Like other SS schemes, the CNSS and the CNRPS are financed by wage taxes. The non-agricultural employees pay a wage tax of 4.75 percent (1.32 % paid by the employee and 3.43% paid by the employer). Other beneficiaries pay varying rates of contribution, depending on their category, but typically less than the 4.75 percent wage tax paid by the non-agricultural employees. Among the self-employed, underreporting of income, and hence contributions, is a widespread problem.

Active CNRPS beneficiaries, as well as their employers, each pay a 1 percent payroll tax, while pensioners pay 1 percent of their pension for the basic compulsory coverage (regardless of scheme chosen). Active CNRPS beneficiaries choosing the supplemental coverage pay an additional 3 percent payroll tax, matched by an additional 1.5 percent tax paid for by the employer.

#### 4.2.3. Benefits

Beneficiaries of the CNSS have three types of coverage: care in the public health care system upon presentation of a health care card (*carte de soins*); care in one of six polyclinics owned and operated by the CNSS; and care in the private (or public) sector for certain types of highly specialized care (e.g., hemodialysis, open-heart surgery). Co-payments are charged for each type of care.

All beneficiaries of the CNRPS are covered by a basic, obligatory scheme, which offers the beneficiary a choice between care in the public sector upon presentation of a health care card (*le carnet de soins*), and care in the public or private sector, based on a reimbursement scheme limited to surgery and long term illness. Patients covered by the public sector scheme, pay limited co-payment for services received, while patients in the reimbursement scheme are reimbursed 80 percent for consultations and doctor visits to the patient's home, and 100 percent for other procedures, including pharmaceuticals. Reimbursement is based on the official tariffs. The official fees for services, however, have not been adjusted for 15 years. During this 15-year period, private sector fees have at least tripled. Therefore, the *effective* rate of reimbursement is actually much lower. For example, a beneficiary may be charged 20-25 TND for a consultation with a gynecologist, but only receive 4 TND in reimbursement from the CNRPS.

In addition to the basic schemes, beneficiaries of the CNRPS may elect optional coverage, which covers services not provided under the basic reimbursement scheme. Care under an optional coverage scheme may be obtained from both public and private providers, but only 15 percent of all beneficiaries have chosen such coverage due to the high cost and limited reimbursement possibility. Furthermore, benefits are capped annually at 200 TND per household. Finally, CNRPS beneficiaries, like the CNSS

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<sup>31</sup> The 1993 social security report.

beneficiaries, are eligible for coverage of certain highly specialized services in the private (or public) sector.

**Table 4.1. Coverage and Financing of Health Risks : Affiliation and Coverage (2003)**

<b>Affiliation Organization</b>	<b>CNSS</b>	<b>CNRPS</b>			<b>AMG (2002)</b>	
<b>Activity Sector and Socio-professional Category</b>	<b>Private Sector: (active + retired private sector employees, independent employers, independent students, and others</b>	<b>Public Sector (Active and Retired)</b>			<b>AMG1</b>	<b>AMG2</b>
		<b>Reimbursable Regime</b>	<b>Regime of in-kind services in the public sector</b>	<b>Optional Coverage</b>		
<b>Estimated Number of Affiliates</b>	1,857,830	690,190		160,000	160,000	550,000
<b>Premiums and other payments</b>	4.75 %	1% + 1%	1% + 1%	1.5 % + 3%	Total exemption	10 TND per year
<b>Limitations of service utilization</b>	No ceiling in the public sector for available services	In the private sector: 80% of doctor's fees based on the tariff in the public sector. Maximum 100 TND per year for pharmaceuticals. Limitations and ceilings for radiology and laboratory services.	No limitations in the public sector for available services	In the private sector: 80% of doctor's fees based on the tariff in the public sector. Maximum 200 TND per year for pharmaceuticals. Limitations and ceilings for radiology and laboratory services.	No ceiling in the public sector for available services	No ceiling in the public sector for available services
<b>Types of coverage for medical services</b>	Public sector and the CNSS polyclinics	Public and private sectors	Only public sector	Public and private sectors	Only public sector	Only public sector
<b>Covered services</b>	Services: outpatient consultations, hospitalization, pharmaceuticals, laboratory and radiology services, certain highly specialized or medical equipment + thermal therapy and treatment abroad	Services: outpatient consultations, hospitalization, pharmaceuticals, laboratory and radiology services, certain highly specialized or medical equipment + thermal therapy and treatment abroad	Services: outpatient consultations, hospitalization, pharmaceuticals, laboratory and radiology services, certain highly specialized or medical equipment + thermal therapy and treatment abroad	A part or the total of contracted fees	Services: outpatient consultations, hospitalization, pharmaceuticals, laboratory and radiology services, certain highly specialized or medical equipment + thermal therapy and treatment abroad	Services: outpatient consultations, hospitalization, pharmaceuticals, laboratory and radiology services, certain highly specialized or medical equipment + thermal therapy and treatment abroad

In addition to the sources of health care coverage already discussed, a number of private employers also provide private health insurance as a benefit to their employees. Those employers subsidize a considerable portion of the insurance premium, which averages between 4 and 7 percent of the wage bill. Such coverage is typically limited to large employers. Only about 1,500 private health insurance contracts, covering 220,000 insured, were in effect in 1996, which is the latest available data. Besides private health insurance, more than 60 non-profit insurance funds (*mutuelles*) provide coverage to about 130,000 beneficiaries in both public and private institutions.

#### 4.2.4. Provider payment methods

Different payment methods—the methods used by payers/financers of care to pay providers of care—are associated with different incentives for (or against) efficiency, equity, quality, and cost escalation.<sup>32</sup> It is important, therefore, to understand which payment methods are being used and what incentives, or disincentives, are imbedded in the health sector. This section reviews the different payment methods used in Tunisia; the associated incentives are analyzed below.

**Table 4.2. Overview of Major Provider Payment Methods (Operating Costs Only)**

Provider	Private Sector	CNSS Poly-Clinics	Public CSB/LH	Regional Hospitals	University Hospitals
Payer					
Non-AMG Individual	Fee-for-service	N/A	Fixed co-payment	Fixed co-payment	Fixed co-payment
AMG1 Beneficiary	Fee-for-service	N/A	0	0	0
AMG 2 Beneficiary	Fee-for-service	N/A	Reduced fixed co-payment	Reduced fixed co-payment	Reduced fixed co-payment
State	N/A	N/A	Line item budgets	Global budget**	Global budgets**
CNRPS Public Sector Scheme	Negotiated fees for certain services only	N/A	N/A	Simple case-based fees***	Simple case-based fees***
CNRPS Reimbursement Schemes	Fee-for-service	N/A		Simple case-based fees***	Simple case-based fees***
CNSS	Limited negotiated fees-for-service	Fixed co-payment	N/A	Simple case-based fees***	Simple case-based fees***
Other	Fee-for-service	N/A	N/A	N/A	N/A

N/A=Not applicable.

\* Only applicable to CNSS polyclinic staff.

\*\* Negotiated global budgets, based on activities and costs.

\*\*\* Different fees charged for different types of admissions, but total budget limited.

As shown in Table 4.2, a variety of provider payment methods is used by the different payers of care. The MOPH, for example, pays regional and university hospitals on the basis of a global operating budget for

<sup>32</sup> For a detailed description of provider payment mechanisms and associated incentives, see, for example, Roberts et al. (2004).

non-salary expenditures.<sup>33</sup> These budgets are negotiated each year on the basis of actual and expected costs and admissions. Primary care centers and local hospitals are financed for on a line-item basis. The Ministry of Finance, however, pays public employees in the health sector on a salary basis.

The CNRPS, which covers public employees, pays for care in regional and university hospitals on the basis of a simple case-based fee system (e.g., a fixed fee is determined for each of a small number of admission categories) but within the context of a global budget. Similar payment methods are used by the CNSS. In addition, the CNSS uses salaries for polyclinic employees and global budgets for the polyclinics themselves. Finally, other payers, e.g., individuals and many private insurance companies, pay on a fee-for-service basis.

In summary, provider payment mechanisms in the health sector tend to be dominated by fee-for-service, salary, and global budgets, which, as will be discussed in Section 5, have important consequences for the health system performance.

### 4.3. Health Expenditures

#### 4.3.1. Trends of health expenditures

Health expenditures in Tunisia have, like those in many other middle-income countries, increased dramatically during the past two decades. Over the period from 1990 to 2003, total health spending increased threefold from 578 to 1,824.6 million TND, with an annual average growth rate of 11.7 percent. However, the analysis of this growth rate shows that it decreased from 15.2 percent between 1985-1990 to 10.2 percent between 1990-1995 to 9.7 percent between the period of 1995 and 2003.

Per capita annual health expenditures per capita have increased by 2.5 fold from 72 TND in 1990 to 184.5 TND in 2003, representing an average annual growth rate of 10 percent. Table 4.3 below shows the total per capita spending from 1990 to 2003.

**Table 4.3. Trend In Total And Per Capita Health Expenditures, 1990-2003**

	1990	1995	2000	2003
Total Health Expenditure (TND Million)	578	938	1,489	1,824.6
Per Capita Health Expenditure (TND)	72	105	156	184.5

*Source: Statistics of MOPH and Ministry of Economic Development. 2005.*

Not only have health expenditures increased in absolute terms, but in relative terms as well. The share of the GDP allocated to health increased from 5.34 percent in 1990 to 5.6 percent in 2003. The State's share of total health expenditures as percent of GDP remained relatively stable at around 2 percent<sup>34</sup> for the time period (1990-1995) ; then later it decreased to 1.7 percent in 2000 and 1.4 percent in 2003 as a result of the significant contributions of the CNSS due to the substantial increase in social and health insurance coverage that went up from 53 percent in 1987 to 86.1 percent in 2003, thus decreasing considerably the number of indigents that used to be covered by the State.

Table 4.4 below depicts the evolution of health expenditures as percent of GDP including that financed by the State's budget.

<sup>33</sup> Regional hospitals receive line-negotiated budgets for approximately two-thirds of capital expenditures, while the remaining share is managed by the MOPH itself, which also manages the capital budgets for public providers at the primary care level.

<sup>34</sup> The State budget refers to MOF budget and does not include financing from the social security funds.

**Table 4.4. Total and State\* Expenditures on Health (Percent of GDP)**

	1990	1995	2000	2003
Total Health Expenditures / GDP	5.3 %	5.5%	5.6%	5.6%
State's Health Expenditures / GDP	2.2%	2.4%	2.2%	1.9%

Note: \* State expenditures exclude expenditures by social security schemes.

Source: Ministry of Public Health and Ministry of Economic Development.

#### 4.3.2. Financing of health care

There are three major sources of financing for health expenditures:

- 1) Financing of the budget by the State: from 1990 to 2003, there has been an average growth rate of health expenditures funded by the State of 8.1 percent. However, despite this increase in financing by the State, the relative contribution by the State to health care has decreased from 38 percent to 24 percent.
- 2) Financing through the social security schemes: From 1990 to 2003, there has been an average annual increase rate of health expenditures by social security of 13.6 percent with an increase in the share of total spending from 15 to 24 percent.
- 3) Private financing includes individual spending (reimbursed and not reimbursed by private insurances or *mutuelles*) and spending from occupational health and curative health from firms. The largest portion of these expenditures are spent directly by households and because of the lack of information, it is very difficult to separate these. From 1990 to 2003, the estimated average yearly increase rate of private health expenditures was 14.3 percent and an increase in total health spending contribution from 47 percent in 1990 to 52 percent in 2003.

Table 4.5 below shows the trend in total health expenditure by source of financing, in absolute and relative terms.

**Table 4.5. Total Health Expenditures by Source of Financing, 1990-2003**

Source of Financing	1990		1995		2000		2003	
	Amount	Percent*	Amount	Percent*	Amount	Percent*	Amount	Percent*
State Budget	218	38	349	37	461	31	481.6	26.6
Social Security	89	15	146	16	297	20	436	24
Households	271	47	443	47	731	49	897	49.4
Total Spending (Million TND)	578		938		1,489		1,814.6	

Note: \* = Percent of total annual expenditure.

Source: MOPH.

When considering total health spending by the public sector (defined as spending by the State and by compulsory social insurance schemes), there is a noticeable decrease in public spending, replaced by an increase in the portion of private spending. Public spending decreased from 53 percent of the total health spending in 1990 to 47.8 percent in 2003. The proportion of public health spending contributed by the State decreased from 38 percent in 1990 to around 24 percent in 2003 and is being replaced by a significant increase in the proportion contributed by social security. This is due in part to social security's participation in two investment programs in the Eighth and Ninth Plans and to the implementation of a billing system for socially health insured beneficiaries to the *Etablissements Publics de Santé* (EPS) within university hospitals and in regional hospitals since 1999.



### 4.3.3. Budget of the Ministry of Public Health

#### 4.3.2.1. Trends of the total budget

From 1990 to 2003, the total budget of the MOPH increased from 271 to 920.6 million TND. Thus, it has increased 3.4 times in 13 years and had an average growth rate of 10.2 percent. The share of total public expenditure that is devoted to health stabilized around 7 percent during the same period. Table 4.6 below shows the trend of the operating and investment budget and the share of public health expenditures from total public expenditures.

**Table 4.6. Composition of Public Health Expenditures and Percent of Total Public Spending**

Unit: Million TND	1990	1995	2000	2003
Operating Budget	242	392	651	845.1
Investment Budget	29	53	82	75.5
Total Budget	271	445	733	920.6
Public Health Budget as Percent of Public Total	6.93%t	6.85%	6.95 %	7 %t

Source: MOPH and MOF.

#### 4.3.2.2. Financing of total budget of MOPH

From 1990 to 2003, financing of the total budget of the Ministry of Public Health has been characterized by:

- A growth in funding by the State in absolute value of 9 percent each year but whose relative share decreased from 80 percent in 1990 to 63.6 percent in 2003.
- A growth in funding by social security in absolute value of 12.7 percent each year but with a relative share increase from 11 percent in 1990 to 22.2 percent in 2003.
- Self-generated revenues essentially from direct, non-reimbursable spending of households (increased on average by 18.7 percent per year) and whose relative share went from 10 percent in 1990 to 14.2 percent in 2003.

Table 4.7 shows the trend in relative share of financing sources of the budget of the MOPH.

**Table 4.7. Relative Share of MOPH Financing Sources, 1990-2003**

Agency/Financing Source	1990	1995	2000	2003
State Budget	80 %	78 %	73%	63.6 %
Social Security	11 %	14 %	15 %	22.2 %t
Household	10 %	8 %	12 %	14.2 %

Source: MOPH Statistics, 2005.

### 4.3.4. Trend influencing health spending and cost-sharing

The evolution of the health care system as well as certain regulations has contributed to a change in the magnitude of health expenditures and its distribution by source. The most significant of these are detailed below:

- During this period, a major expansion of health services occurred, particularly in the private sector and ambulatory care but especially in private hospitalization. For example, the number of private clinics went from 28 (956 beds) in 1987 to 70 (2,350 beds) in 2003,

while the number of private practitioners went from 1,374 to 3,644. The majority of the population does not have access to these services, being financed by direct, non-reimbursable household expenditures.

- To limit the amount of health care services provided in foreign countries, special contracts have been established with private health care facilities to improve the financial accessibility of social security beneficiaries. This covers cardiovascular surgeries, tomodynamometry, lithotripsy, and hemodialysis.
- The co-payments (*tickets modérateurs*) payable to public health structures were increased in 1991, 1993, and 1996.
- Revision of fees in the nomenclature of professional acts: 1996.
- The decision of the government, in 1995, to increase the share of social security for health services provided in the public sector.
- In 1996, an agreement protocol was concluded between the MOPH and the Ministry of Social Affairs (*Ministère des Affaires Sociales*) to establish a billing system for hospitalization of social security beneficiaries in the university hospitals, functioning as EPS.
- In 1997, this same protocol was expanded to ambulatory and emergency services in the same facilities.
- As of 1999, the same system of billing was progressively expanded to all regional hospitals.
- These protocols led to an increase in the amount financed by social security to the MOPH by adapting the unit cost of services and procedures for implementation.
- In 1998, the public authority decided to revise the conditions on which free health care was provided to the poor and the categories of beneficiaries of reduced rates for health care and hospitalization in the public health facilities, as well as modality of their benefits and applicable rates to. The goal was to better target the populations in need in relation to pre-established national criteria. However, this has not allowed a reduction of the number of beneficiaries.
- The number of beneficiaries of total free care AMG1 went from 120,000 to 160,000, which represents 8 percent of the families. The number of beneficiaries of reduced rates in the public sector AMG2 went from 500,000 to 560,000, representing 28 percent of the families.
- These numbers add up to the 2,500,000 beneficiaries of the social security schemes and are supposed to cover the entire population of beneficiaries with some targeting mechanisms to avoid double coverage and also to avoid that some families end up without coverage.

#### 4.3.5. Breakdown of health spending

Household surveys show an increase in the share of families' income that is currently devoted to health and hygiene: it reached 10 percent in 2000. Fifty-five percent of the household spending related to health and hygiene is due to drugs and ambulatory visits (Table 4.8).

**Table 4.8. Share of Household Income Spent on Health and Hygiene (1985-2000)**

	1985	1990	1995	2000
Health and Hygiene	7 %	8.7 %	9.6 %	10 %

Source: MOPH.

**Table 4.9. Distribution of Household Expenditures on Different Health Care Services, 2000**

Health Care Service	TND	Percent
Pharmaceutical Products	33.3	47
Ambulatory Care	22.7	32
Hospitalizations	9.8	13.8
Additional Tests	3.7	5.2
Other	1.4	2

Source: National Survey on Household Consumption, INSP, 2000.

According to the estimates based on the EPS budget, public sector expenditures are almost equally distributed between ambulatory and hospital care. Expenditures attributable to drugs account for one-third of the operating costs of the facilities excluding personnel, which constitutes up to 15 percent of total MOPH expenditures.

**Table 4.10. Financing of Public Health Facilities (Million TND)**

	2002				2003				2004				
	Subv	CSS	RP	Total	Subv	CSS	RP	Total	Subv	CSS	RP	Total	%
EPS	30	80	56.5	165.3	16.3	96	61.6	174.0	16.0	103.0	30.4	149.4	47.7
HG*	3.1		2.7	5.8	3.0		2.8	5.9	2.7		3.1	5.7	1.8
HR	1.5	40	23.7	65.2	6.0	54	24.7	84.7	2.0	62.0	28.0	92.0	29.5
HC	21.7		15.3	37.0	23.0		15.6	38.6	24.2		17.5	41.7	13.4
GS	14.7		6.6	21.3	15.5		6.6	22.0	16.3		7.5	2.4	7.6

Source: MOPH Statistics, 2006.

Legend: EPS = *Etablissement Public de santé* (specialized University Hospitals)  
 HG = *Hôpitaux Généraux* (University hospitals) (general hospitals)  
 HR = *Hôpitaux Régionaux* (regional hospitals)  
 HC = *Hôpitaux de circonscriptions* (local hospitals)  
 GS = Refers to the Primary health care centers.  
 Subv = *Subventions* or subsidies (from the State's budget)  
 CSS = *Caisse de sécurité sociale* (Social security funds)  
 RP = *Revenu Propre* (self-generated income or operating revenue)

The University hospitals take up almost half of the operating budget of the public facilities, excluding personnel. Personnel represent approximately 60 percent of the total facilities budget. The primary care level facilities use 21 percent of the budget and the regional hospitals about 30 percent.

#### 4.3.6. Conclusions

The trend in health spending and financing reflects changes within the health system, which is going through socioeconomic, demographic, and epidemiologic transitions. This trend has been characterized by a rapid increase of expenditures, relatively proportional to the increase in GDP. These changes led to an extensive growth of the health sector, marked by an important development of health services, especially in the private sector. They also led to a modification in the demand for health services, in terms of quantity and quality. As a result, deep variations at the level of financing have occurred, especially the resulting higher price paid by the patient.

The government, being aware of this inequity, has embarked on reforms of the health system in order to improve the efficiency of the services in the public sector and to regulate services in the private sector. The government has also decided to implement a reform of the health insurance schemes of the social security, which is currently under way. The main goal of this reform is to improve financial access of the social security beneficiaries to public and private health care, while ensuring quality with a sustainable cost for the society.

#### **4.4. PHARMACEUTICAL PRODUCTS**

The pharmaceutical sector in Tunisia has unique operating characteristics that affect both the private and public sectors. The main characteristics of this sector are the following:

- Regulation by different public structures with a well-defined control mechanism
- Centralization of the importation of drugs by public institutions (Central Pharmacy of Tunisia and Pasteur Institute of Tunis)
- Local production by private firms, which have been growing strongly since the 1990's
- Distribution of medication by a network of small private businesses
- Existence of a well-developed and decentralized network of private pharmacies.

##### *4.4.1. Local manufacturing of pharmaceutical products*

Local manufacturing covered around 8 percent of total drug expenditure in 1987. In 2001 there were 29 manufacturing units in Tunisia, with an increase in coverage to 45 percent of the total national market. This evolution, however, has not been linear in time.

##### *4.4.2. Centralization of importation*

All medications are imported exclusively by two public institutions: The Pasteur Institute of Tunis for vaccines, sera, allergens, and blood products; and the Central Pharmacy of Tunisia (PCT) for all other types of pharmaceuticals. Blood products, sera, vaccines, and allergens constitute only 5 percent of total imports. Therefore the PCT imports the majority of pharmaceutical products.

The cost of importation in USD has remained relatively constant, but the cost of importation in TND has been significant, with a growth of 67 percent in 10 years. This is not due to an increase in the volume imported, which has actually decreased (see chapter on local production) but is explained by depreciation of the TND in comparison to other international currencies, especially the USD. This also reflects the marked increase in the prices of drugs in the worldwide market, in particular for new therapeutic drugs.

##### *4.4.3. Consumption and rational utilization of medications*

Consumption of pharmaceutical products is estimated to be 400 million TND for 2001, which represents less than 0.1 percent of the global market, estimated to be 364.2 billion USD. Per capita consumption increased by 40 percent between 1985 and 2001, from 30 TND to close to 42 TND per person per year. This increase is relatively minor compared to that of industrialized countries (it is 12 times smaller than the increase in France, for example).

Medications used to treat infectious diseases comprise a large share of these pharmaceuticals. In value, the consumption was 19.6 million TND in 1990. This had tripled by 2000, reaching 63.5 million TND, or 22 percent of the total pharmaceutical market.

***Supervision of Prescription.*** The Ministry of Public Health established official formularies of drugs available in hospitals and pharmacies in order to promote the rational use of drugs. The pharmacy nomenclature includes equally a limited number of entries (around 1,730). The number of available drugs in the private pharmacies is thus reduced compared to those available in most of the European countries (in France for example, it is close to 7,250, which corresponds to more than 4,000 different drugs that are marketed in pharmacies).

The drugs registered in the list are regularly re-evaluated. A restriction also is placed on the prescriptions permitted according to the provider (primary care centers versus hospitals) or qualifications of the general practitioners (non-specialized doctors versus specialists), which reduces the risk of inadequate use of drugs.

***Encouragement of utilization of locally produced pharmaceuticals and generics.*** The share of the market in monetary value accounted for by generic drugs has remained globally stable for a number of years; at the hospital level, the share has even noticeably declined during the five last years. The hospital sector is the principal user of generic medications: in 2001, 37.6 percent in monetary value of the medicines prescribed by the hospital were generic (compared to 16.4 percent in pharmacies). In units, the share of the generic products used in the hospital sector surpasses 50 percent. For a few years, Tunisia encouraged usage of generics by implementing regulations, providing incentives to firms that produced medications locally, and encouraging international bids for flexible sources of drugs, including for the private pharmaceutical sector.

This policy promoting local production of pharmaceuticals contributed to the situation where, in 1997, about two-thirds of locally produced drugs were generics. However, the generic medications have not been as successful as initially hoped for the following reasons:

- The private pharmacists do not have the right to substitute.
- The cost control mechanisms, which decrease the price difference between generics and brands.
- The trend to prescribe drugs by brand instead of their internationally recognized name.
- The income of the distributors and pharmacists in pharmacies is derived from a percent of the sale price; therefore their income is lower if they sell less expensive drugs.

#### ***4.4.4. Stocking and distribution***

A pharmaceutical distribution network ensures the availability of pharmaceuticals throughout Tunisia. The opening of pharmacies, which is based on the number of inhabitants by region (*numerus clausus*) and the sales volume by region, guarantees an equitable and balanced distribution of pharmacies over the entire territory. The evolution of the number of pharmacies since 1987 and their distribution by governorate, as well as their distribution by age groups, are encouraging signs that have benefited this sector. The same has occurred for the medical and scientific information sectors.

In 2002, there were 1,272 day time pharmacies and 153 open exclusively at night time. The number of pharmacies had increased by 44 percent between 1990 and 2000. The wholesale distribution is assured to some extent by the PCT for drugs that are essentially chemically based and by the IPT for the vaccines and for the sera and the blood products, but also by the network of private retailers. The PCT has the exclusive distribution rights for drugs in the public sector, while the private sector is served by private retailers as well.

#### 4.5. THE ROLE OF THE PRIVATE SECTOR

The private sector represents half of health expenditures and encompasses 50 percent of the doctors, 73 percent of the dentists, and 80 percent of the pharmacists. Private inpatient care is only emerging but already makes up 12 percent of the beds and includes practically 70 percent of heavy equipment.

High-tech interventions, including hemodialysis and thalassotherapy services, require prior authorization of the MOPH and are subject to a certain degree of standardization. The private clinics and the paramedical professions are only required to follow a job description registry. Private clinics are located almost equally in the large urban zones and the capital city, while hemodialysis centers, which are defined by the health map (*carte sanitaire*), are equitably distributed between the regions. Physicians are free to choose where they want to practice. Their distribution remains unequal throughout the country: half of the specialists are located in the capital city.

**Table 4.11. Geographic Distribution of Private Hospitals and Bed Capacity, 2000**

	Number of Private Hospitals	Bed Capacity	Hemodialysis Centers	
			Number of Centers	Number of Machines
Tunis	43	1297	30	316
Center East	15	512	24	248
Remainder of the Country	23	570	45	422
<b>TOTAL</b>	<b>81</b>	<b>2379</b>	<b>99</b>	<b>986</b>

Source: MOPH, Health Map, 2000.

**Table 4.12. Geographic Distribution of Private Physicians and Population Ratio, 2000**

	Specialists	Ratio	GP	Ratio
Tunis	1096	1/1950	1013	1/2100
Center East	465	1/4700	672	1/3200
Remainder of the Country	445	1/15000	950	1/7000
<b>TOTAL</b>	<b>2006</b>	<b>1/4930</b>	<b>2635</b>	<b>1/3750</b>

Source: National Survey on Household Consumption, INS, 2000.

Health services for foreigners have started to develop in the country as a consequence of law No. 94 of August 7, 2001, which regulates offshore clinics and authorizes the reimbursement of the Value Added Taxes. Health care services provided to Tunisians are to a great extent paid out-of-pocket by patients. The group and mutual insurances (*mutuelles*) cover part of ambulatory and clinical services, but this applies to only a small percentage of the social security beneficiaries.

The optional coverage of the CNRPS covers only a very small part of the services provided in the private sector. Social security schemes cover almost completely the services provided in the areas of cardiovascular surgery, kidney, or bone marrow transplant or some additional tests (Magnetic Resonance Imaging (MRI), Computerized Tomography (CT) scan, or lithotripsy), and totally cover hemodialysis. Regardless, this sector continues to develop with the help of important private investments and some encouragement from the State. It is preferred for the rapid access to services provided, despite the growing complaints of excessive prices.

The MOPH can control this sector through a team of medical inspectors but cannot influence the medical fees that are set by the physicians. The fees charged by the private clinics are not regulated; the clinics are

only required to display the prices to the public. This situation creates cost containment issues in the private sector.

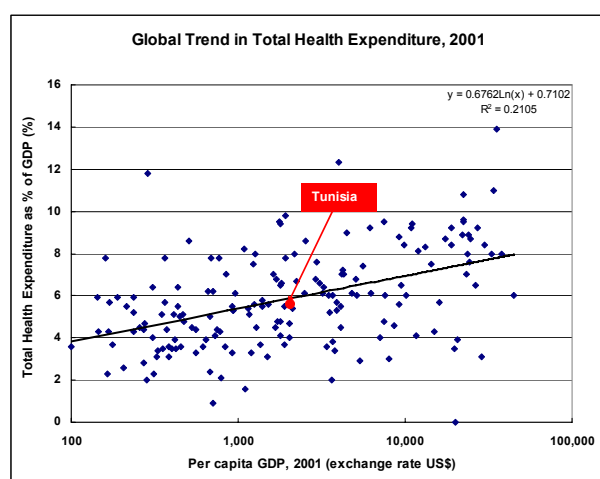
#### 4.6. International Comparisons

The estimated per capita health spending in Tunisia in 2002 was USD 126. According to the Bank's calculation, this amount is equivalent to the average MENA per capita spending for 2002. Tunisia's health expenditure as a percent of GDP was estimated to be 5.6 percent of GDP, which is also close to the MENA regional average of 5.5 percent. In terms of the global trend, Tunisia's per capita expenditure on health as a percentage of GDP is in line with the global trend, as shown in Figure 4.1.

On the contrary, Tunisia's public sector accounted for 50 percent of all health expenditures in 2002. This is slightly lower than the MENA average of 57 percent and indicates that the private sector's contribution is larger than the MENA average. The global trend analysis on government expenditure on health also indicates that the public sector accounts slightly less than other countries with the same level of per capita GDP.

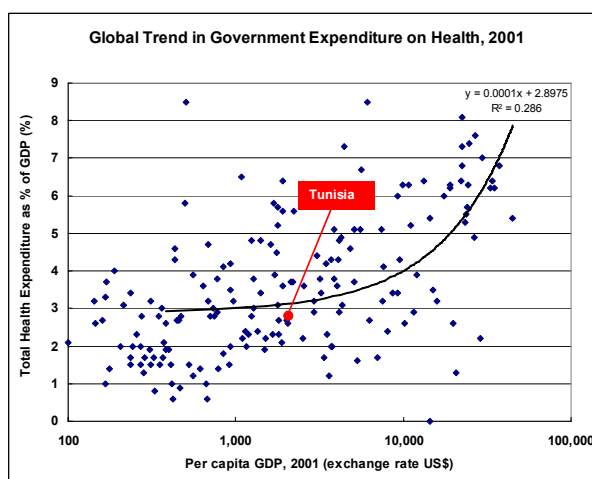
In terms of health care resources, the number of doctors per 1,000 population is comparable to the levels in other countries at similar income levels. The pattern is similar with respect to the number of hospital beds per 1,000 persons.

Figure 4.1. Global Trends in Total Health Expenditures (2001)



Source: World Development Indicators 2004 & WB estimates

Figure 4.2 Global Trends in Government Health Expenditures (2001)



Source: World Development Indicators 2004 & WB estimates

## 5. PERFORMANCE OF THE HEALTH SYSTEM

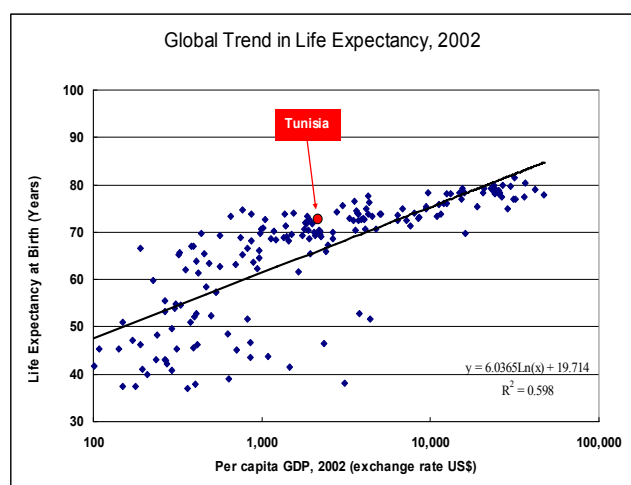
In this chapter, the performance of the health system will be analyzed according to the following three system objectives: Efficiency, Equity and Quality.

### 5.1. Efficiency of the Health System

#### 5.1.1. Global efficiency: macroeconomic efficiency

In the last decade Tunisia has achieved significant improvements in health outcomes given its level of spending has ranged around 5.5 percent of GDP and per capita health expenditures have been about USD 150. Compared to other countries of the world with similar income and levels of health spending in 2002, Tunisia has achieved a much higher life expectancy rate and lower infant, child, and maternal mortality rates (Figures 5.1, 5.2, 5.3, and 5.4).

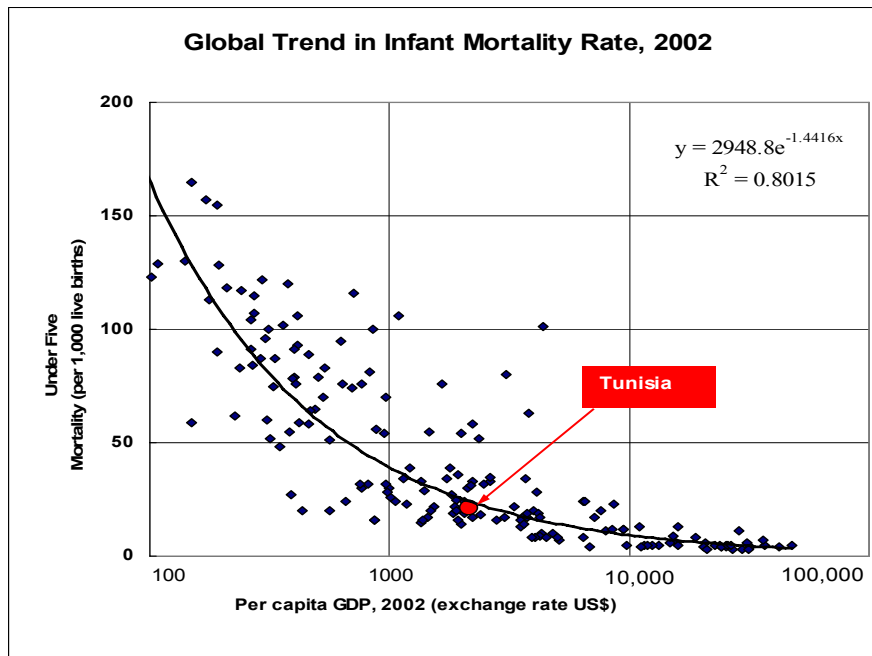
**Figure 5.1. Global Trend in Life Expectancy, 2002**



Source: World Development Indicators 2004.

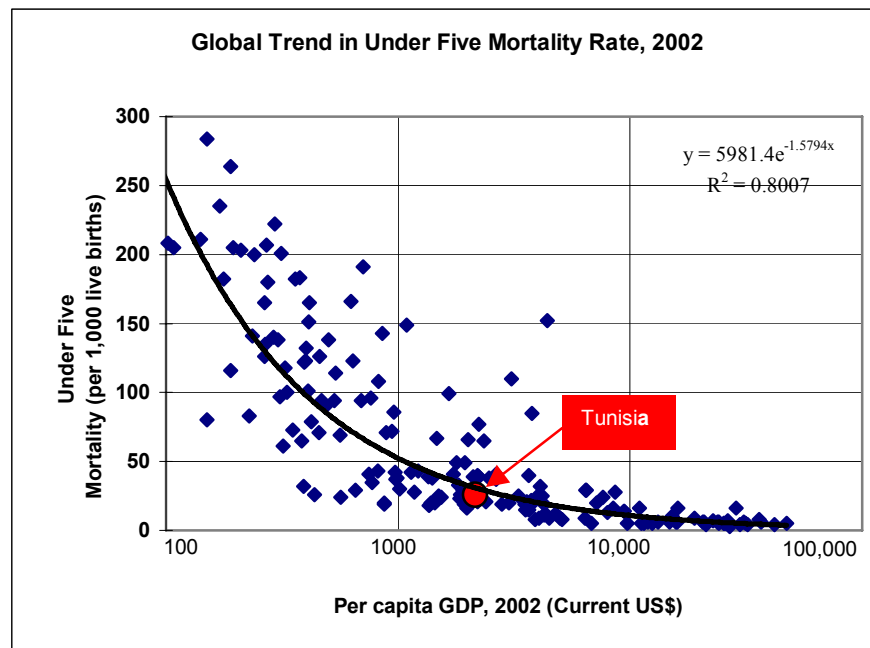


Figure 5.2 Global Trend in Infant Mortality Rate, 2002



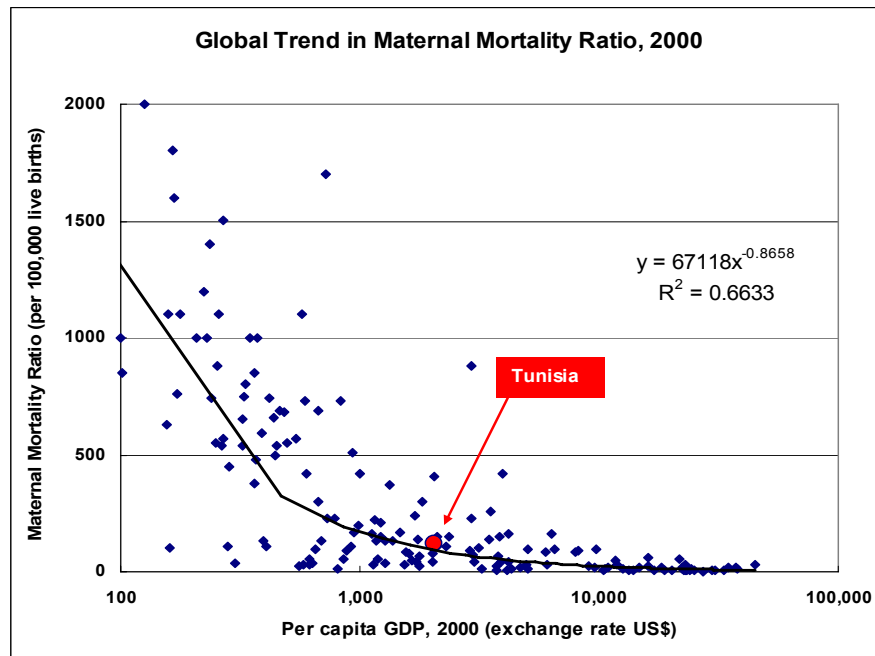
Source: World Development Indicators 2004.

Figure 5.3. Global Trend in Under Five Mortality Rate, 2002



Source: World Development Indicators 2004.

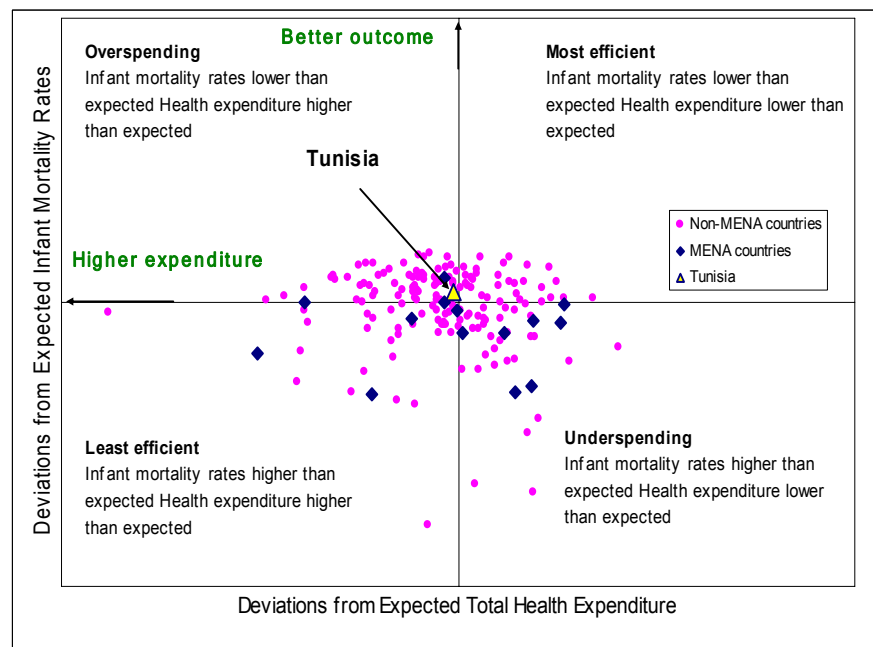
**Figure 5.4. Global Trend in Maternal Mortality Ratio, 2000**



Source: WHO/UNFPA/UNICEF.

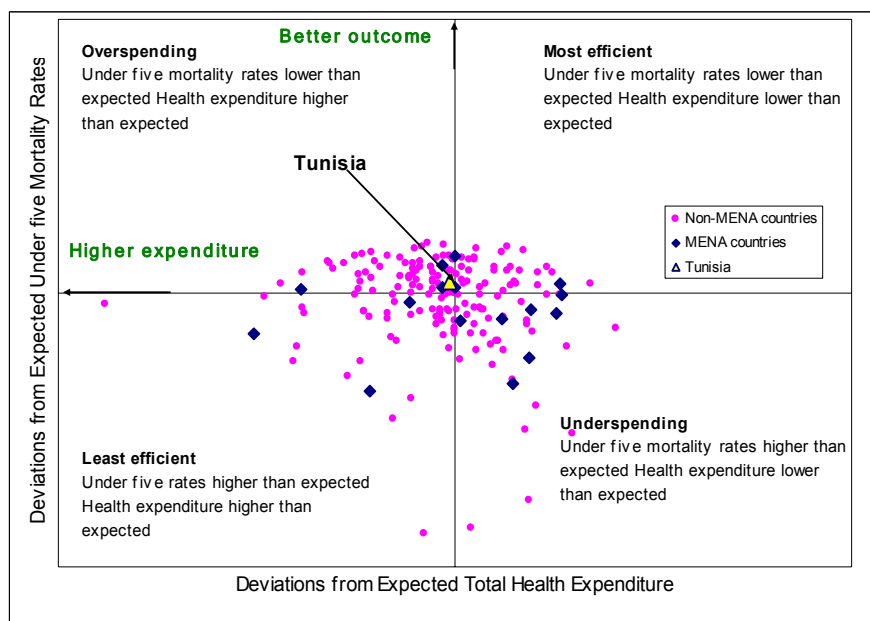
Analyzing the efficiency of health expenditures, Tunisia is getting the health outcomes commensurate with its level of spending, compared to other countries of the world, thus implying a good balance between expenditures and outcomes (Figures 5.5 and 5.6). These figures suggest however that there is room for increasing the efficiency of health spending by improving the allocation and utilization of available resources and increasing public-private partnerships.

**Figure 5.5. Total Health Expenditure and IMR**



Source: World Development Indicators 2005 and World Bank estimates.

**Figure 5.6. Total Health Expenditure and Under-Five Mortality Rate**

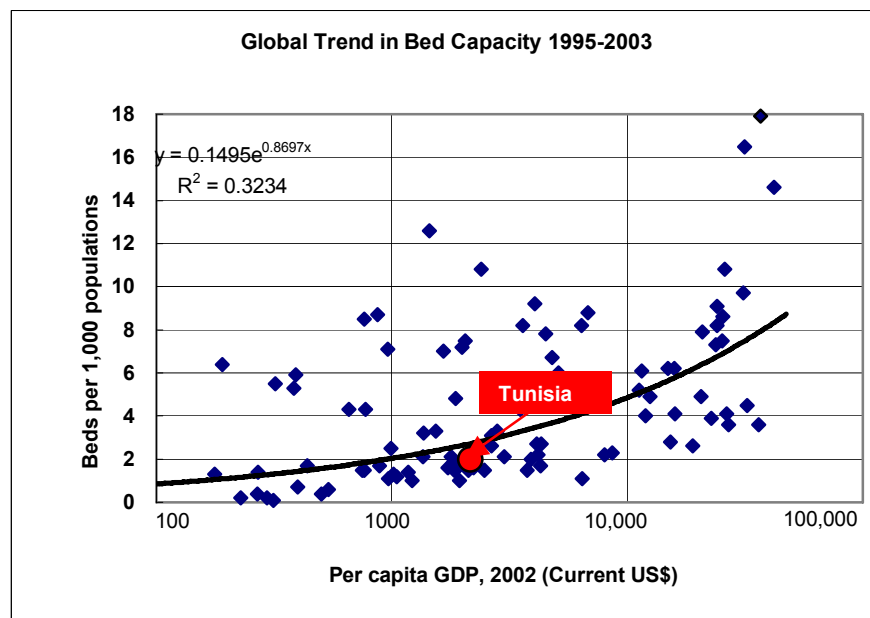


Source: World Development Indicators 2005 and World Bank estimates.

### 5.1.2 Efficiency if the components of the system: microeconomic efficiency

At the national level, Tunisia has 2 beds and 0.7 physician per 1,000 population, which is less than other countries with comparable levels of income as shown in Figures 5.7 and 5.8.

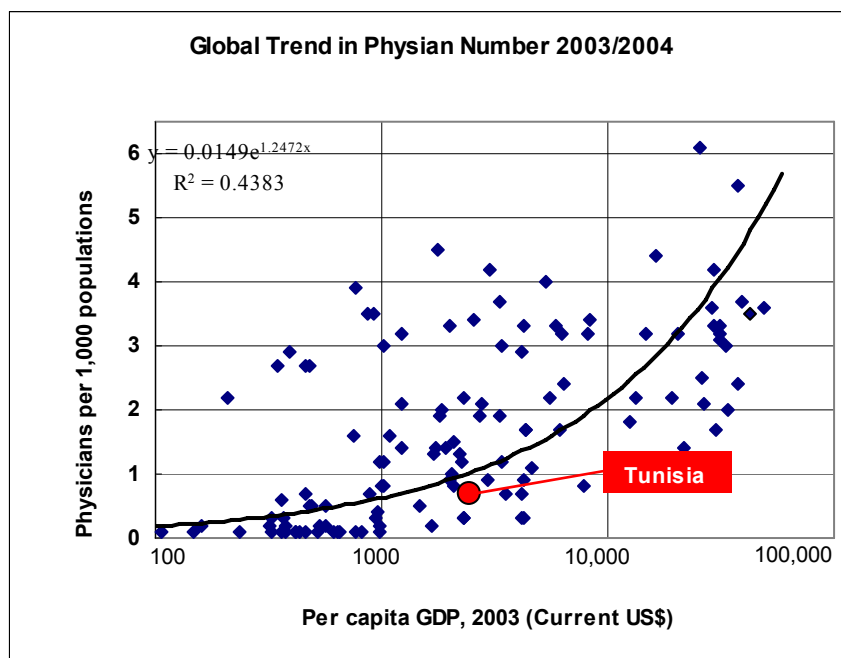
**Figure 5.7 Global Trend in Bed Capacity, 2003**



Note: Some countries have only the bed numbers in public institutions.

Source: World Development Indicators 2005, World Bank estimate of Iraq GDP.

**Figure 5.8 Global Trend in Physician Numbers, 2003**



Note: Some countries have only the bed numbers in public institutions.  
Source: World Health Organization (1995), OECD and, World Bank estimate for ECA countries.

The following section will then analyze the efficiency of the different components of the MOPH delivery system.

**Technical Efficiency.** Technical efficiency issues in MOPH facilities are examined in the following section. The analysis is a first step in a process that should lead to regular reporting and detailed unit-cost analysis at all levels of care to improve the basis for decision-making. An efficiency analysis of private sector providers is equally important, particularly in relation to health insurance reform and to determine the rates that health insurers pay private providers. The analysis of rate structures, however, was not within the scope of this study due to lack of data.

#### 5.1.2.1. Primary health care centers

**Outpatient and Reproductive Health Visits.** Outpatient visits to PHCs (medical consultations), excluding reproductive health visits (family planning, pre-natal and post-natal visits), totaled 8,720,509 in 2002, corresponding to an average 0.89 PHC consultations per capita. The average number of outpatient visits varied across regions and governorates from 0.63 in the District of Tunis to 1.06 in the North East region. Even if reproductive health visits are added (1,619,506), the average number of outpatient visits per capita is only 1.06 (and the regional variations remain). This rate is very low for the first level of referral, indicating that the population in general does not consult with doctors and nurses, or that they may be seeking consultation at other levels of the referral system instead of at the PHCs. One of the main reasons for the latter could be that 45 percent of the PHCs are open for outpatient visits only one day per six-day working week. In fact, about 73 percent of the PHCs are open for medical consultations three days or less per week. For reproductive health services, the PHCs are open even fewer days: 54 percent are open one day a week, and 83 percent are open three days or less per week.

The average number of outpatient visits per PHC was 4,300 in 2002, with the fewest number of visits in the South East region (2,904), and the highest utilization in the District of Tunis (8,377). This difference in the average number of annual visits per PHC is difficult to calculate, as the opening hours vary across the PHCs. However, assuming that all PHCs are open 52 weeks per year, the average number of outpatient visits per open day was about 33, ranging from a low of 25 visits per day in the South West region to a high of 41 in the North East region (41). While these results should be interpreted with care, it is clear that there is considerable regional variation in the productivity across PHCs. Whether due to the number of opening days per year or the productivity per day, the reasons for the variation should be explored if productivity gains are to be achieved.

**Staffing and Workload.** In 2002, there were 1,251 full-time, PHC-dedicated doctors and another 308 doctors in the LC clinics who undertook occasional outreach work in the PHCs. The population ratio per full-time PHC doctor varied from 6,154 in the District of Tunis to 12,176 in the Central West region. Assuming that PHC doctors see all outpatients, the workload per doctor would be about 7,000 patient visits per doctor in 2002. If a doctor works 300 days per year on average, the doctor will see on average 23 outpatients per day, which is a reasonable workload. However, there are large differences between regions. PHC doctors in the District of Tunis see only 3,900 patients per year (13 per day), while those in the Central West region see more than 11,000 (37 per day). These physician workload estimations are on the high side because LC-based doctors are not included in the estimation, and because many outpatients most likely are attended to by nurses or paramedics. In reality, therefore, the workload of PHC doctors is probably lower and there is scope for efficiency gains by analyzing the differences in regional workloads and reorganizing the work.

#### 5.1.2.2. Local hospitals

As noted in Chapter 3, there are 113 local hospitals, including 13 maternity centers (MC). The size of LCs and MCs varied considerably in 2002, from 3 inpatient beds to 75 beds. The average size of the LCs and MCs is about 23 beds and the median size is 20 beds, which is quite small even for district hospitals. The MCs are particularly small, ranging in bed numbers from 3 to 8, but there are also LCs with as few as 4 beds.

**Inpatient Services.** The 100 LCs admitted 91,212 patients in 2002, while the MCs admitted 3,124 patients. The average length of stay at the LCs was 3.5 days, and the occupancy rate was 35.9 percent. At the MCs, the average length of stay was 1.1 days, and the occupancy rate was 12.4 percent. Even though the average length of stay at the LCs seems somewhat reasonable, there are large variations with the maximum length of stay being 6.8 days and the minimum 0.6 days. At the MCs, the maximum length of stay is 1.7 days and the minimum 0.3 days. For both the LCs and MCs, the occupancy rates are very low indicating either excess capacity in terms of inpatient beds or underutilization of inpatient services at this level, or both. Only two facilities have occupancy rates above 75 percent. The regional variations in ALOS are low, and the occupancy rates vary from 25.9 percent in the District of Tunis region to 39.9 percent in the Central West region.

The efficiency of inpatient services (occupancy rate) seems to be related to the size of the LC/MC, as there is a positive correlation between the two. However, if the 29 smallest facilities with fewer than 15 beds are excluded, there is no correlation between the number of beds and the occupancy rate among the remaining facilities (with 15 or more beds). Among the 29 facilities with fewer than 15 beds, the relationship between inpatient beds and occupancy rates is even negative.

**Outpatient and Emergency Visits.** In 2002, the 108 LCs and MCs that had data on outpatient and emergency visits reported a total of 4,053,138 outpatient visits (OPVs) and 1,268,799 emergency visits (ERVs). This is on average 37,529 OPVs and 12,318 ERVs per facility. Assuming that on average the

outpatient clinics in the LCs and MCs are open six days a week for five hours per day (8:00 – 13:00) for 52 weeks, the average number of outpatient visits per working hour per LC/MC is 24. As an average this seems to be reasonable. It would in principle mean that about four to six outpatient clinics (in each LH) would be busy all year around, assuming four visits per hour. The number of emergency visits per clinic is about one-third of the number of outpatient visits. If the facilities are also open only five hours per day, for six days a week, 52 weeks per year, this is equal to a workload of about eight visits per hour. Given that the facilities also have inpatient services, the emergency department would be assumed to be open for more than five hours per day. Thus, in reality, the workload of the emergency department would be lower.

**Staffing and Workload.** A total of 798 doctors (748 general practitioners and 50 specialists) were based at the LCs in 2002. This is on average 0.31 doctors per inpatient bed. Considerable variations exist between regions, with 1.02 doctors per LC inpatient bed in the District of Tunis and 0.22 in the North West region. The number of doctors per 1,000 population is 0.08 (0.075 general practitioners and 0.005 specialists), which is very low compared with other countries. The specific workload for doctors is difficult to assess, since several of the doctors assigned to the LCs also work at the PHCs. The number of nurses assigned to the LCs was not mentioned in the Health Map of 2002, and therefore could not be analyzed.

#### 5.1.2.3. Regional hospitals

**Inpatient Services.** The 34 RHs admitted 282,597 patients in 2002, with a total number of inpatient days of 1,235,353. In 1998, 31 RHs admitted 232,920 patients, with a total number of inpatient days of 1,068,038. The number of admissions and inpatient days thus increased by 21.3 percent and 15.7 percent between 1998 and 2002. During this period, the ALOS of inpatients decreased from 4.6 to 4.4 days, and the occupancy rate increased slightly from 54.4 percent to 57.9 percent, despite the increase in number of beds.

The ALOS at RHs compares relatively well with that of general hospitals (with some specialist services) in countries at the same level of development as Tunisia. There are, however, major variations in ALOS across the hospitals, with the highest ALOS (6.8 days) found in RH Beja and the lowest (2.1 days) in RH Ben Arous. There is a positive, but weak, correlation between the number of inpatient beds and the ALOS, which is to be expected since a larger number of specialties and complicated cases, requiring longer hospital stays, are usually handled in larger hospitals.

In terms of the number of inpatient beds and occupancy rates, there is an even weaker, but still positive, correlation. In fact, if one divides the hospitals in two groups: the 17 smallest hospitals (up to 124 beds) in one group, and the 17 largest in another group, the occupancy rates differ (about 50 percent for the smaller hospitals and 64 percent for the larger hospitals), but within each group, the occupancy rate is independent of the number of beds. This indicates that there may be a threshold above which the RHs become more efficient as measured in terms of occupancy rates. When the same type of analysis is carried out with 1998 data, exactly the same type of pattern is seen: There is a positive but weak correlation between the number of inpatient beds and occupancy rates. However, using regression analysis, the 16 smallest hospitals (up to 130 beds) have a constant occupancy rate of about 43 percent, and the 16 largest ones, an occupancy rate of about 57 percent. The overall conclusion still holds, namely, that the larger hospitals (130+ beds) seem to be more efficient.

The RHs are quite small in terms of inpatient capacity (median is 127 beds per RH) given that they are meant to function as a general hospital with a few specialties. This is not conducive to efficient hospital operations. Furthermore, based on the observed occupancy rates, there is significant scope for considerable efficiency gains, since the observed occupancy rates, while better than those in the region, are far below the internationally considered minimum occupancy of 75 to 80 percent for an efficient

utilization of the invested capital and human resources. In 2002, only 3 of the 34 RHs had occupancy rates above 75 percent. The wide variations in ALOS should also be examined in greater detail to investigate whether RHs with low ALOS are more efficient than those with higher ALOS, and how the numbers are related to the quality of services.

**Outpatient Visits and Emergencies.** In 2002, a total number of 1,531,541 outpatient visits and 1,210,423 emergency visits were recorded for the 34 RHs, an increase from 1998 of 23.4 percent and 16.5 percent respectively. This corresponds to an average of 45,045 outpatient and 35,601 emergency visits per RH per year. Assuming that the outpatient clinics in the RHs are open on average six days a week for five hours per day (8:00 – 13:00) for 52 weeks, the average number of outpatient visits per working hour per RH is 29, given that there may be four to six different outpatient clinics in the hospital.

The number of emergency visits appears to be quite high compared to the outpatient visits. It is unclear if the high number is due to imprecise recordkeeping, since a patient visit to the emergency room may result in a hospitalization. The same encounter may thus be registered as both an ERV and a hospitalization, resulting in a significant number of double entries. Given that the operating costs of an emergency department are usually much higher than that of an outpatient clinic, significant efficiency gains could be realized by reorganizing the services of the RHs in this respect. Another reason for the high number of ERVs is that this is the only source of access to health care in the afternoon and evening, as well as during the night. PHCs are closed in the afternoon, and there are (virtually) no afternoon outpatient visits either. While efforts have been made to change this in the past five years, the efforts have been met with little success, reportedly because of difficulties in changing cultural habits.<sup>35</sup>

**Staffing and Workload.** In 2002, two-thirds of the 1,098 RH doctors were specialists. This is on average 0.19 doctors per inpatient bed, but this ratio also varies across hospitals, ranging from a low of 0.09 to a high of 2.17 doctors per inpatient bed. Compared with international figures, the number of medical doctors per bed is quite low. This may be one bottleneck preventing higher bed occupancy rates.

The number of nurses in the regional hospitals was 6,058, corresponding to an average of 1.04 nurses per inpatient bed and 5.51 nurses per doctor. The latter ratio seems quite reasonable in light of the fact that Western European countries report approximately 5.52 nurses per doctor.

**Unit Costs.** A detailed analysis of unit costs using a cost-center approach is beyond the scope of this study. Instead, non-salary, recurrent costs (for the year 2002) were used to carry out an inter-hospital cost-variation analysis. Empirical studies<sup>36</sup> have shown that for general hospitals, one inpatient day costs roughly the same as three outpatient visits. Using this approach for the RHs, the average cost per treatment unit (one outpatient visit = 0.33 inpatient days) was calculated to be 8.90 TND in 2002, ranging from a low of 4.99 TND to a high of 18.10 TND.

Another way to estimate the relation between activities and costs is to undertake regression analysis of the key parameters. Using the number of inpatient days and the combined number of outpatient visits and emergency visits as the explanatory variables, a linear regression of recurrent costs indicates that 91.5 percent of the variation in costs can be explained by variations in inpatient days and the combined number of OPVs and ERVs, with both explanatory variables being statistically significant at the 95 percent confidence interval (P-value < 0.05).

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<sup>35</sup> According to MOPH officials, both doctors and patients prefer to work/seek care in the private sector in the afternoon.

<sup>36</sup> See, for example, Shepard et al. (2000).

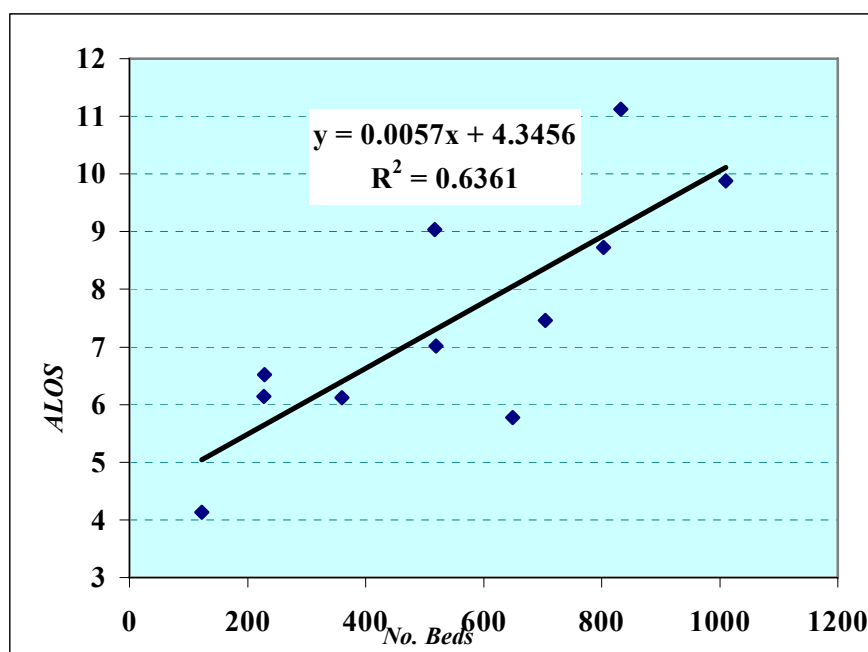
#### 5.1.2.4. Public Health Establishments (EPS) and University Teaching Hospitals (CHU)

##### *Scope of Services and Activities*

**Inpatient Services.** The 22 university hospitals have 8,590 beds, ranging in size from 26 to 1,010 beds, and with an average bed size of 390. In 2002, these hospitals recorded 305,248 admissions, corresponding to 45 percent of total hospital admissions in MOPH facilities, and 2,485,733 days of hospitalization (61 percent of the total number of hospital days in MOPH facilities), which represented an annual increase in the number of inpatient admissions of 47,751, and an increase in the number of inpatient days of almost 55,000 per year since 1994.

The ALOS was 7.66 days in 2001, but this average conceals wide variations both across hospitals and across specialties within hospitals. The Ophthalmology Institute of Tunis had an ALOS of 4.1 days, while the specialized psychiatry hospital in Mannouba had an ALOS of 29 days. The difference in the ALOS is partly explained by specificities of diseases or group of diseases treated by each institution. The large general hospitals, Sahloul Sousse with 519 beds and Charles Nicoles of Tunis with 1,010 beds, recorded higher than average ALOS. This is reflected in Figure 5.7, which indicates that there is a positive and significant correlation between the size of the hospital and the ALOS. Since the university hospitals account for 36 percent of the national hospital capacity and almost half of hospital days (45 percent), additional examination of these hospitals' operations would seem worthwhile.

**Figure 5.9. Correlation between ALOS and Hospital Size, 2002**



Source: MOPH.

A relatively low rate of increase in the capacity of teaching hospitals, combined with a relatively high rate of increase in the number of inpatient days, has resulted in an improved occupancy rate of 79.3 percent in 2002, indicating better resource utilization. However, the occupancy rates vary greatly among facilities, with the lowest rate observed in Razi Manouba and the highest rate (102.5 percent) at the Institute of Neurology of Tunis. In 2002, 6 hospitals had an occupancy rate higher than 90 percent. Apparently, very high occupancy rates are not rare at the individual service level.

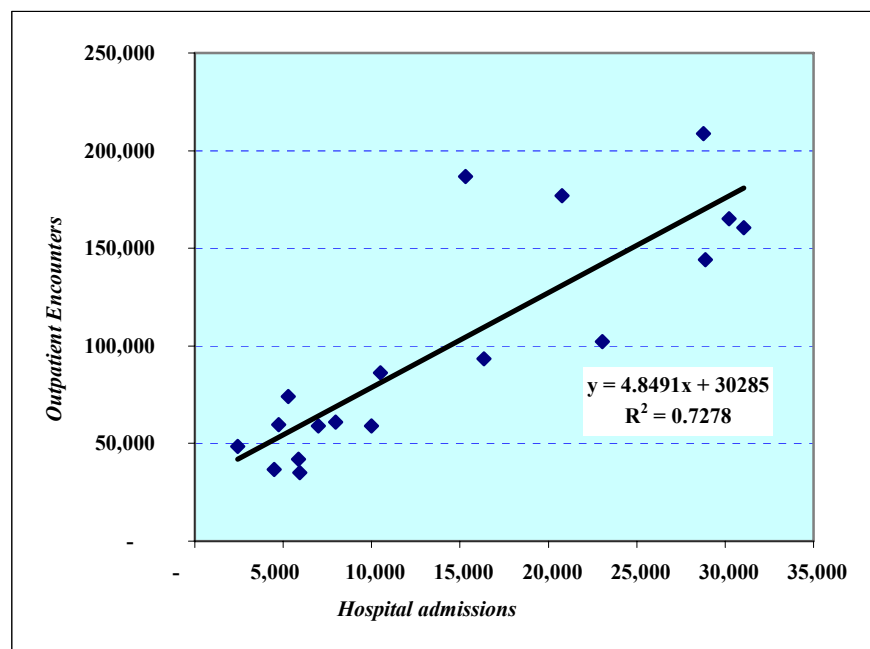


For example, the occupancy rate recorded in 2001<sup>37</sup> in the orthopedics service of Charles Nicoles, Aziza, Othmana, and Kassab hospitals were 111 percent, 117 percent, and 116 percent respectively, implying that hospitals may sometimes be forced to solve capacity constraints by putting two patients per bed, placing mattresses on the floors, unofficially adding more beds, or using beds in other wards. Whatever the explanation, when the maximum threshold is exceeded, quality of care suffers. A reallocation of infrastructure and resources could reduce the pressure and the occupancy rates to more manageable levels for the overloaded departments and hospitals, and increase the utilization of others that are currently under-utilized. Another approach would be to determine whether some of the cases treated by university hospitals could be handled at lower levels of care, or be avoided all together (amputations of diabetic patients' limbs are virtually completely preventable and recent estimates in Tunisia indicate that approximately 75 percent of all amputations are to diabetics, suggesting significant savings).

**Outpatient Visits and Emergencies.** Outpatient visits and emergencies constitute a very significant activity for the teaching hospitals. Hospital admissions must be ordered by a doctor during an outpatient consultation, except in emergency cases. Moreover, the university hospitals receive patients transferred from other governorates either for consultation, additional diagnostic analyses, or hospitalization.

On average, university hospitals have a ratio of seven outpatients to one admission. Emergency visits account for 25 percent of ambulatory activity, and on average 11 percent of all ambulatory encounters (consultations or emergency visits) lead to a hospitalization. Figure 5.8 below shows the significant relationship between the number of outpatient encounters and hospital admissions.

**Figure 5.10. Correlation between Outpatient Encounters and Hospital Admissions**



Source: MOPH.

<sup>37</sup> The relative statistics by hospital and service are not yet available for the year 2002.

### Unit Costs

**Inpatient Services.** In 2001 the average cost of one inpatient day in a university (EPS) hospital was 113 TND. With an ALOS of 7.7 days, an admission costs an average of 862 TND. These average costs refer to 130 different services identified in 17 EPS hospitals, including 14 in Tunis, and three others in the Sousse-Monastir metropolis. The great diversity in the size and types of medical specialties offered by the different EPS hospitals make cost analysis difficult, particularly since the calculated costs vary from one across hospitals and services.

The lowest average costs per inpatient day are recorded in the psychiatry department at the "RAZI" Hospital of Mannouba (21 TND) and hematology at the Rabta Hospital (27 TND). At the other end of the spectrum are some extremely high unit costs: Intensive care services at Sahloul Sousse Hospital (984 TND), cardiology diagnostics at the Rabta Hospital (940 TND), and ophthalmology services at Charles Nicole Hospital (925 TND). In comparison with these extreme cases, the average cost of an inpatient day is much lower. For example, a day in the intensive care unit at Mongi Slim Hospital of Marsa is 509 TND, which is almost half the cost at Sahloul Sousse hospital. With such high unit costs, hospital stays quickly become very expensive, unless the duration is very short. There are 15 types of services in Tunisia. In general, the medical specialties are the least costly, while intensive care is the most expensive, as noted above.

Table 5.1 also provides information about the distribution of cost by cost category (personnel, other recurrent costs, and depreciation). It is interesting to note that personnel costs account for only about one-third of total hospital costs, whereas non-salary operating costs make up 55 percent of total costs. This is a rather unusual distribution of costs, as personnel costs typically account for 50 to 60 percent of total cost, and other recurrent costs a correspondingly smaller share of the total. The depreciation rate is not unusually high, although it is higher than in some countries.

Table 5.1 contains a detailed unit cost analysis by service. Not surprisingly, this analysis points to large differences in the cost of the same service across different hospitals, as well as large differences in service costs within the same hospital. In Rabta Hospital, for example, the average cost for a cardiology service examination is 940 TND, while a pediatric cardiology service examination is only 65 TND. The differences in the distribution of costs across cost categories also vary considerably. This probably reflects different medical techniques as well as resource and patient management policies.

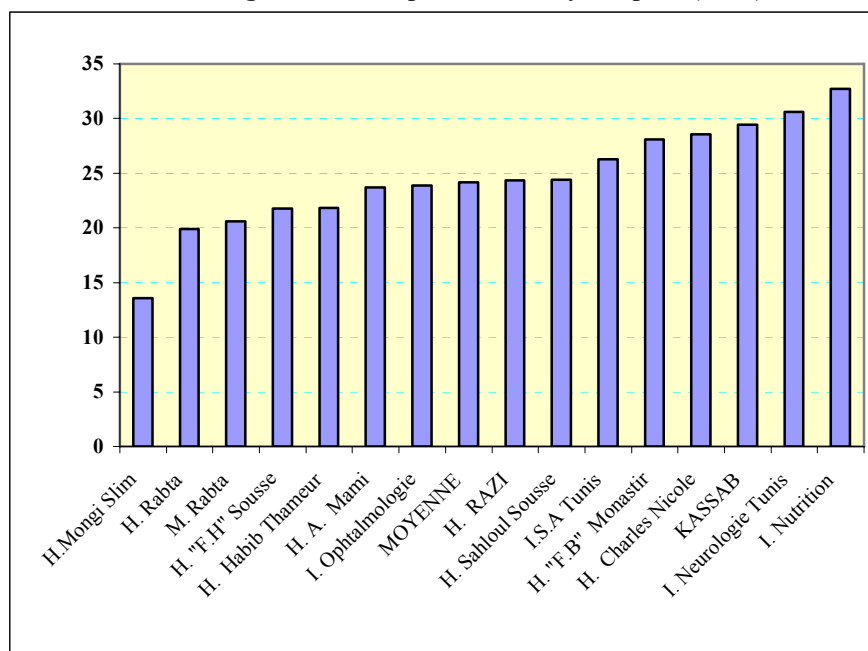
**Table 5.1. Cost by Medical Specialty in EPS (2001)**

Medical Department	Cost Per Inpatient Day	ALOS	Avg. Cost Of An Admission	No. Of Beds	Personnel Cost Per Inpatient Day	Other Recur- Rent Cost Per Inpatient Day	Depreciat ion Cost Per Inpatient Day	Personnel Costs In %	Other Recurre nt Cost In %	Depreciation Costs In %
Psychiatry	34	26.7	912	644	14	18	2	40 %	53 %	7 %
CURI	47	27.4	1,279	36	23	22	2	50 %	46 %	3 %
Nutritional Diseases	75	8.8	665	61	29	43	3	38 %	57 %	5 %
Rheumatology	85	12.8	1,087	94	34	38	13	40 %	45 %	15 %
Pediatrics	90	6.0	539	479	32	47	10	36 %	53 %	12 %
Gynecology	91	3.7	339	640	33	51	6	36 %	57 %	7 %
Pneumology	91	14.0	1,271	366	31	46	14	34 %	51 %	15 %
Orthopedics	100	8.7	869	320	31	63	6	31 %	63 %	6 %
Neonatology	102	12.5	1,273	72	44	51	6	44 %	50 %	6 %
Endocrinology	103	9.6	992	80	36	41	27	35 %	39 %	26 %
Hematology	107	4.8	511	66	18	78	11	17 %	73 %	10 %
Medical Physiology	108	29.0	3,142	46	31	67	10	29 %	62 %	9 %
Urology	113	7.6	860	201	37	59	17	33 %	53 %	15 %
Neurology	114	8.8	1,001	110	48	59	7	42 %	52 %	6 %
Internal Medicine	119	11.7	1,388	441	37	69	12	31 %	58 %	10 %
Gastro Enteritis	122	11.7	1,428	161	41	53	28	34 %	43 %	23 %
Cardiology	125	9.3	1,157	355	32	78	15	25 %	63 %	12 %
Infectious Diseases	135	12.8	1,726	62	42	49	43	31 %	36 %	32 %
General surgery	138	6.4	887	620	45	74	20	32 %	53 %	14 %
Ear, Nose, & Throat	140	6.0	841	234	52	64	24	37 %	45 %	17 %
Child Pediatrics	142	5.6	799	178	60	71	10	43 %	50 %	7 %
Neurosurgery	148	10.4	1,543	117	44	91	14	30 %	61 %	9 %
Dermatology	160	15.5	2,485	129	72	56	32	45 %	35 %	20 %
Ophthalmology	170	4.7	801	205	55	94	20	32 %	56 %	12 %
CCCVT	172	12.2	2,100	93	38	111	23	22 %	65 %	13 %
Intensive Care Unit	332	8.9	2,966	128	118	185	29	35 %	56 %	9 %
Total	113	7.66	862	6,030	38	62	13	34 %	55 %	12 %

Source: MOPH.

**Outpatient Visits and Emergencies.** The average cost of an outpatient visit (including all services) is estimated at 24 TND. This estimated cost is composed of operational costs (60 percent), which include technical costs (55 percent), 17 percent for drugs, and 15 percent for administration. The staff costs represent a third of the total average consultation costs (34 percent). The allocation for equipment with depreciation of fixed assets and equipment is 6 percent.

**Figure 5.11. Outpatient Cost by Hospital (TND)**

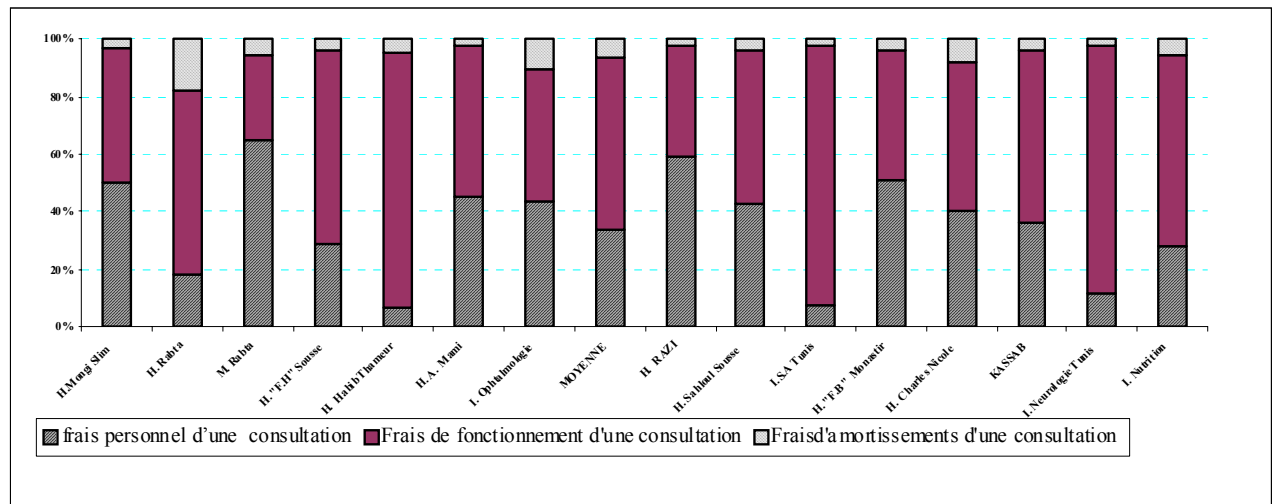


Source: MOPH.

The 24 TND per outpatient visit conceals considerable variation across the hospitals (with available information). As can be seen from Figure 5.9, Mongi Slim hospital in La Marsa had the lowest outpatient cost (13.6 TND) report, while the Neurology Institute of Tunis (30.6 TND) and the Nutrition Institute (32.7 TND) had the highest. All other hospitals had costs between 20 and 30 TND. The cost structure at the Mongi Slim Hospital in La Marsa deserves attention in order to understand the factors that contribute to its successful cost control.

Regression analysis of various parameters potentially associated with the cost of outpatient visits did not yield any useful results. Instead, it is instructive to consider the cost structure, which, as shown in Figure 5.10, varies considerably across hospitals. It is noteworthy that Mongi Slim Hospital, with the lowest average cost, has personnel costs of 50 percent, while the Nutritional Institute of Tunis, which had the highest outpatient care costs, had personnel costs of about 30 percent.

**Figure 5.12 Composition of Outpatient Costs by Hospital, 2001**



Source: Authors calculations based on MOPH and MOF data.

These average outpatient costs are similar to, or lower than, the fees charged in the private sector. The quality of a patient's reception in a private office or a polyclinic is not necessarily better than in the current public sector (at the university hospitals). If one therefore deducts the costs for non-salary operating costs (drugs, laboratory services, etc.) and technical expenses, which on average account for 14.4 TND (of the 24 TND outpatient visit), the average cost for an outpatient visit in a teaching hospital is less than 10 TND (9.8 TND), which is about one-third the fees charged by private doctors. This figure may therefore serve as a basis for negotiating future fees to be paid to private providers under the new health insurance scheme.

## 5.2. EQUITY OF THE HEALTH SYSTEM

In this section, we will analyze equity in regards to two aspects:

- Access to health services, and
- Equity in financial contributions to health care costs.

### 5.2.1. Access

In terms of access to health services, it is fair to say at the outset that the health system is equitable for the first and second line of public health care facilities as they are distributed across the entire country (1 health center per 4,300 inhabitants, 1 local hospital in each delegation, and at least one regional hospital per governorate). Nonetheless, those health facilities, even though fairly distributed geographically, do not offer the same types of services for their population leading to inequities in access to care. In order to illustrate these inequities, the distribution of staff and hospital beds across the country will be used.

Excluding the private sector (about 20 percent of the total capacity) that are located exclusively in the rich coastal areas, the hospital beds are inequitably distributed among the different regions. In order to keep a reasonable comparison, we will also exclude the regions with university hospitals that serve the entire population. Accounting for these limitations, bed capacity varies greatly between regions. It is shown in beds per 1,000 inhabitants. The lowest rates are:

- 0.76 for Sidi Bouzid
- 0.8 for Kasserine
- 1.1 for Silana
- 1.15 for Kairouan

These underserved areas are also the poorest areas in the country. In terms of staff distribution, the number of inhabitants per general practitioner (GP) varies from 1,560 in Tunis to 3,989 in Sidi Bouzid. The poorest areas have fewer physicians as well:

- Kasserine with 3,717 inhabitants/GP
- Kairouan with 3,858 inhabitants /GP
- Jendouba with 4,294 inhabitants /GP

For the number of specialists: the number of inhabitants per specialist (excluding university areas) varies from 1,309 for Kasserine, 11,081 for Sidi Bouzid to 4,249 in Bizerte or 3,902 in Nabeul.

The distribution inequities are even more severe when we only look at specialists in the private sector. The most extreme values are 16,050 in Tozeur to 2,968 in Nabeul. It is interesting to note that this is inversely proportional to the prevalence of health problems. For example, infant diarrhea is four times higher in Kasserine than Nabeul; similarly the unassisted delivery rate is 50.5 percent in Kasserine, compared to 1.2 percent in Nabeul. The inequitable access to health care services therefore led to wide regional disparities in health outcomes. These results can however hide some important regional disparities that can be revealed by:

- The infant mortality rate, which was 24 per 1,000 in 2000 but with a rate of 16 percent for urban areas compared to 30 per 1,000 for the rural areas.
- The under-five mortality, which was 30 per 1,000, with a rate of 15 per 1,000 for urban areas, compared to 40 per 1,000 for rural areas.

These disparities can be explained to a great extent by a difference in coverage by primary care services that can vary significantly from one area to another, for example:

- Full immunization rates that vary from 15 percent in Tataouine to 94.8 percent in Nabeul
- Proportion of unassisted deliveries, which varies from 51.3 percent in Kasserine to 0 percent in Tunis
- Rate of coverage by four prenatal visits that varies from 98.7 percent in Nabeul to 10.6 percent in Tataouine.

The challenge for an equal distribution can be summarized in the following way: Target the health care services distribution policy towards the underserved areas that have the worst health indicators.

### 5.2.2. *Equitable financing: equal contribution*

In theory, financing of health services should be covered either by the State budget or by the health insurance system. Direct provider payment should only consist of co-payments (*ticket modérateur*) because, still in theory, everybody should be covered either by a mandatory health insurance scheme regardless of employment status or by one of the free health insurance schemes.

In practice, however, the mandatory health insurance scheme only covers services provided by public providers, unless it is an exception. Health services provided in public facilities are often insufficient, especially in the outpatient setting and are often perceived as being of poor quality by the beneficiaries. This has encouraged consumers to seek health services in the private sector against direct payments that are not reimbursed by health insurance. Therefore, even though there is a theoretically equitable financing system where the State covers the cost of mandatory health insurance premiums for the poor, this is very relative as shown by data on expenditures accepted by health insurances and the ones accepted by the State. In 2003, financing was distributed as follows:

- 26.6 percent by the State budget
- 24 percent by the mandatory and optional health insurance schemes
- 49.4 percent by direct contributions of households (out-of-pocket); this percentage does not take into account the reimbursement from optional health insurance schemes.

The main source of inequity is represented by the 49.4 percent of out-of-pocket expenditures that are borne by the beneficiaries despite the ability to pay. The study on household consumption expenditures classified beneficiaries in three groups:

- Group 1: The uninsured
- Group 2: People with mandatory health insurance and one or more optional health insurance coverage (CNRPS or private group insurance or mutuelle)
- Group 3: People only covered through mandatory health insurance.

This study showed that the most important part of direct expenditures consists of drug expenditures:

- 20,847 / year for Group 1
- 32,002 / year for Group 2
- 23,120 / year for Group 3.

## **5.3. QUALITY OF THE HEALTH SYSTEM**

### *5.3.1. Overview of quality of care in Tunisia*

Any nation, including Tunisia, which concerns itself with quality of care, has to confront the fact that the easiest variables to monitor and manipulate—namely inputs—are not necessarily those which guarantee desired results (outcomes). It is not uncommon, however, for countries to begin by focusing on enhancing inputs, and only later move to process improvement and outcome monitoring. And the history of quality improvement efforts in Tunisia reflects just this pattern.

Since the late 1980s, quality of care has been a declared priority for the Government of Tunisia, as reflected in various five-year development plans. Much attention has been given to upgrading secondary and tertiary care facilities through investments in facilities and equipment. Significant efforts have also been made to improve all types of human resources through training programs for the medical, paramedical, managerial, and administrative staff. The Bank-financed Health Sector Loan also included significant upgrading of the mix of medical specialists at the regional hospitals, as well as a variety of investments to improve pre- and post-hospital emergency care (at a regional hospital) and the development of a national strategy for emergency medical services.

Despite these efforts, anecdotal and observational evidence suggests substantial input issues remain to be addressed. Local hospitals and maternity centers have not received the same attention as secondary and tertiary care facilities. As a result, their facilities are generally not as well developed, and their low levels of utilization suggest significant patient dissatisfaction with the quality of care in those facilities.

In addition, there are also still complaints about the secondary and tertiary institutions many of which also focus on inputs – non-functional equipment, an insufficient supply of drugs, and the lack of qualified staff. In a recent patient satisfaction survey of regional hospitals, patients reported observing numerous improvements, but a majority remained dissatisfied with many aspects of (service) quality of care. Despite these shortcomings, many of these institutions are overcrowded, reflecting the bypassing of lower-level facilities by patients who believe the quality there is less reliable.

Efforts focused on improving the process of, and outcome from, care first began to take hold in the early 1990s, when improving maternal and infant mortality became a national priority. A National Perinatal Program (NPP) was established to improve maternal and infant care. Based on the results of the national survey undertaken by the NPP, a number of program and policy changes were implemented by the DSSB. For example, maternal and infant care was integrated into primary health care and protocols were developed for perinatal care in close collaboration with the relevant professional associations. In addition, a policy was established to investigate all maternal deaths in public hospitals. These maternal mortality investigations led to the establishment of new measures to correct identified deficiencies on a continuing basis.

While these efforts have produced significant results for birth outcomes in the public sector, many challenges remain, as deliveries in the private sector are rarely affected by the Primary Health Care Department's (DSSB) excellent efforts. Furthermore, there are some communities where unattended child births remain a problem, leading to poor outcomes. Efforts by the DSSB continue to be made to address these and related challenges.

The DSSB has also been a pioneer in terms of developing guidelines at the primary care level for the treatment of patients with chronic diseases. For example, diabetic care is now based on a detailed clinical protocol (and patient record) to ensure that appropriate treatment is delivered. Unfortunately, despite these protocols, diabetes care remains suboptimal according to the limited evidence available. For example, the 2001 National Health Utilization Survey<sup>38</sup> found significantly higher levels of various morbidity indicators among diabetes patients, which suggest that there are quality concerns in this area. Furthermore, informal reports from several hospitals in Tunis suggest that a large proportion of amputations are performed on diabetes patients, and that a large percentage of patients on dialysis are diabetics. Since amputations and renal failure are both complications of diabetes resulting from poor long-term metabolic control, which is a well-established indicator of poor quality of care, this suggests that efforts to improve diabetes care should be strengthened.

In addition to the efforts by the DSSB, a variety of other initiatives to improve quality of care have blossomed during the past decade. The Central Blood Bank has recently become ISO certified and laboratory testing at several tertiary care centers has been subject to similar improvement efforts. However, these efforts have been the results of enterprising individuals, rather than of a strategic priority at the national level, which until recently was absent. With the establishment of a quality of care unit within the MOPH and the launch of the National Quality Improvement Strategy in October 2003, the MOPH for the first time has initiated efforts to address quality improvement in a systematic way.

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<sup>38</sup> MOH survey.



In an effort to further this goal, a conference on quality of care, cosponsored by the MOPH, the World Bank/World Bank Institute, and WHO/EMRO, was held in Hammamet in June 2004. The conference recognized that much of the good work has been already carried out in Tunisia, but emphasized the need to establish a culture of quality of care that focuses on outcomes as well as processes (and structure). In particular, the participants at this conference recommended the development of new clinical databases, as well as better utilization of existing data sources. For example, the breast cancer registry indicates that patients with breast cancer typically present with Stage 3 disease (fairly advanced cancer), which is much more difficult to treat successfully; yet to date little action is being taken to address this issue. Similarly, intrapartum deaths, which are a well-established quality indicator for obstetric care, are recorded but underused in public hospitals. Since results from several hospitals indicate excellent outcomes, they could serve as a reference for hospitals with poorer results.

In summary, and while there are no systematic data available to assess quality of care in Tunisia, the available evidence suggests that in spite of the many successful efforts and initiatives to improve the quality of care, there is considerable room for improvement. In particular, the recent growth of the private sector suggests that the population is dissatisfied with the quality of care in the public sector, although patients typically can only judge input availability and service quality, and not the appropriateness of clinical practice and decision-making. This implies that the recent efforts to improve quality of care in the public sector should continue and be expanded. Furthermore, since little evidence exists about quality in the private sector, it would be desirable to begin collecting such data in order to assess what quality improvement efforts should be directed at this increasingly important source of care.

### 5.3.2. *Analysis of quality of care as measured by patient satisfaction*

To evaluate the quality of health care in regional hospitals, the Tunisian MOPH and the National Institute of Public Health (*Institut National de Santé Publique – INSP*) conducted a study to gauge the perception of the technical and service quality of the regional hospitals by the users themselves.<sup>39</sup> A total of 4,130 patients at seven hospitals were surveyed.<sup>40</sup> Users received treatment as emergency, outpatient, and transfer patients. Their illnesses ranged from critical to non-critical. The average hospitalization was between 8.5 and 12 days.

The study evaluated the users' perceived satisfaction with the following aspects of the hospital: reception, hospital room amenities, competence of personnel, health care provider-patient relations, and outpatient care. The study also examined the extent to which users perceived an improvement in the quality of care as a result of hospital reform.

**Service Quality.** The level of service quality varied between regional hospitals. When questioned about the level of information provided before hospital admission and the reason and probable length of their hospitalization, 33.8 percent of those surveyed considered themselves well informed; 25.7 percent responded they were informed; 15.8 percent judged themselves to have received little information; and 24.7 percent stated they were not informed. Considerable differences in perceptions existed between the hospitals studied. In Gabes, for example, 59.7 percent of the patients considered themselves very well informed; whereas in other hospitals, only 4.8 to 11.1 percent of patients surveyed considered themselves well informed.

The quality of all aspects of a patient's reception by the hospital was accorded significant importance by more than 90 percent of all patients surveyed. In judging the quality of their reception, 56.0 percent of patients considered it rather satisfactory; only 8.6 percent judged it to be very satisfactory; 29.0 percent

<sup>39</sup> Hsairi, M., Fakhfakh, R., Achour, N., Perception des Usagers de la Qualité des soins dans les Hôpitaux Régionaux, Ministère de la Santé Publique, Institut National de la Santé Publique avec La Direction des Etudes et de la Planification, Novembre 2002.

<sup>40</sup> The seven hospitals are: Menzel Bourguiba, Nabeul, Sidi Bouzid, Kef, Tozeur, Gafsa, and Gabes.

responded less than satisfactory; and 6.4 percent judged their reception to be unsatisfactory. The proportion of those that were discontent with their reception ranged between 14.3 percent and 58.2 percent among the seven hospitals. The completion of administrative formalities was judged to be 50.0 percent rather satisfactory, 7.5 percent very satisfactory, 32.9 percent less than satisfactory, and 9.6 percent unsatisfactory. Before hospital admission, waiting conditions were judged very satisfactory by 5.2 percent, rather satisfactory by 42.8 percent, less than satisfactory by 40.1 percent, and unsatisfactory by 11.9 percent; and the quality of information provided by the reception office before admission was considered to be 5.9 percent very satisfactory and 53.2 percent rather satisfactory.

Most families brought meals to hospitalized patients. On average, only 40 percent of the patients took meals prepared by the hospital. Of these, only 21.6 percent considered the meals to be served sufficiently hot; 36.8 percent were satisfied by the quantity served; and 48.3 percent by the hours of meals. In at least one hospital, 92.1 percent of patients had their meals prepared by the hospital.

On the comfort of hospital rooms, 51.0 percent were satisfied with conditions (46.2 percent rather satisfied, and 4.8 percent very satisfied). The cleanliness of the room was judged by 48.1 percent as satisfactory (44.2 percent rather satisfactory and 3.9 percent very satisfactory). The quality of the equipment in the room was considered by only 35.0 percent of patients to be satisfactory (32.0 percent rather satisfactory and 3.0 percent very satisfactory). Nabeul had the highest rate of satisfaction with 61.2 percent satisfied with the equipment. The heating of the room was considered satisfactory by 62.7 percent (58.1 percent rather satisfactory and 4.6 percent very satisfactory). The hours for room cleaning satisfied 58.0 percent of patients (54.6 percent rather satisfied and 4.6 percent very satisfied).

**Technical Quality.** In the majority of hospitals surveyed, patients viewed the nurse comportment negatively. Only 17.6 percent were rather satisfied and 2.3 very satisfied. The number of visits that nurses made to patients was judged 39.1 percent rather satisfactory and 3.2 percent very satisfactory. As to the nurses' responsiveness to patients' needs, 46.9 percent were rather satisfied and 3.7 very satisfied. Regarding the degree of nurses present on duty, 47.3 percent were rather satisfied and 4.3 percent very satisfied. A majority, 68.9 percent, of patients were satisfied by the nurses' respect for a patients' privacy. Explanations furnished by nurses to patients were considered 38.4 percent satisfactory. The rapidity of response by nurses was judged 42.8 percent rather satisfied and 4.6 percent very satisfied. The ease of receiving medications from nurses when needed was viewed by 46.6 percent as rather satisfactory and by 4.5 percent as very satisfactory. The kindness with which nurses provided care was considered rather satisfactory by 59.2 percent of patients and very satisfactory by 7.6 percent.

The doctors' comportment with patients during their initial contact with the patient was only viewed rather satisfactory by 25.5 percent by users and 4.6 percent very satisfactory. On the other hand, 73.4 percent of patients were satisfied with the level of respect accorded by doctors to their patients. And as for the perceived level of the doctors' competence, 69.9 percent were rather satisfied and 10.7 very satisfied. The quality of explanations provided by doctors to their patients was judged by 48.6 percent rather satisfactory and by 6.5 percent very satisfactory. The number of visits by a doctor to the patient was considered rather satisfactory by 37.5 percent of users and 4.3 percent very satisfactory. The ability to contact doctors was only 34.9 percent rather satisfactory and 3.8 percent very satisfactory.

Patients received satisfactory assistance in easing their pain in 70.0 percent of cases, 84.5 percent in Nabeul. In the case of fever, satisfactory assistance was claimed in 52.8 percent of cases, and relief from other problems was relieved satisfactorily according to 49.7 percent of users. Patients perceived a clear improvement in their health status after hospitalization in 46.6 percent of those surveyed; 46.6 percent considered their improvement moderate and 5.7 percent did not perceive any improvement, whereas 1.1 percent believed that their health condition had deteriorated.

A slim majority of users, 52.3 percent, were globally satisfied by hospital conditions (48.3 percent satisfied and 4.0 percent very satisfied). The level of patient satisfaction was significantly associated with age, gender, level of education, type of coverage, hospital establishment, and the patients' perception of his or her severity of illness. The elderly aged over 55, particularly males, those with little or no education, and benefiting from gratuity of care, and those with a self-perceived seriousness of illness were the most satisfied of the patients surveyed.

**Table 5.2. Results of the Patient Satisfaction Survey**

<b>Satisfaction with the Quality of Emergency Care</b>		
	<b>Rather Satisfied</b>	<b>Very Satisfied</b>
Reception	51.5	4.4
Completion of Administrative Formalities	47.7	4.0
Relation with Caregivers	53.3	4.0
Waiting Period for Doctor	35	2.6
Length of Medical Consultation	41.7	1.8
Competence of Doctors	58.4	4.9
Doctors' Explanations	39.6	2.3
Laboratory Procedures	56.8	2.4
X-Ray Procedures	57.6	2.4
<b>Satisfaction with Outpatient Care</b>		
	<b>Rather Satisfied</b>	<b>Very Satisfied</b>
Completion of Administrative Formalities	37.1	3.1
Waiting Time	22.9	1.4
Politeness of Agents (?)	55.0	2.9
Length of Medical Consultation	41.3	1.8
Competence of Doctors	65.1	4.4
Doctors' Explanations	43.4	2.7
Laboratory Procedures	54.8	2.9
X-Ray Procedures	54.8	3.0

Source: Patient Satisfaction Survey 2002

The majority of hospitalized patients, 81.0 percent, were given hospital appointments as a result of an external consultation. In 80.3 percent of cases, the hospitalization appointment dates were honored. Of those surveyed, 62.7 judged that the waiting period between the given appointment and the actual hospitalization was acceptable.

The drugs prescribed during outpatient consultations were judged to be available by 59.9 percent of users on average. Availability of prescription drugs varied between the regional hospitals by 39.5 and 88.8 percent.

***Patient's perception of hospital reform.*** The majority of patients surveyed perceived an improvement in the context of the GOT's hospital reform project. In fact, certain aspects of reform were judged to be improved by over 70 percent by those surveyed, including improvement in reception 73.7 percent; the appearance of the exterior of the hospital 80.2 percent; heating in the hospital rooms 73.5 percent; and respectful treatment of patients by nurses 70.5 percent and by doctors 70.7 percent. Other aspects were judged improved by a proportion of between 50 and 70 percent. Patients found that rooms had improved

by 56.4 percent; hospital signage by 65.1 percent; property improvement 52.0 percent; the quality of medical equipment 62.7 percent; the number of doctors per hospital 63.4 percent; the number of medical specialists 52.7 percent; number of nurses 50.5 percent; respect for the patients and their entourage 68.9 percent; general organization of the hospital 57.6 percent; organization of hospital scheduling 55.8 percent; delay in scheduling follow up examinations 4.8 percent; and the presence of nurses on duty 50.9 percent.

Nevertheless, certain aspects were judged to have improved in less than 50 percent of the cases including: the quality of nutrition 39.9 percent; the provision of medicine 46.9 percent; the decrease in encumbrances in emergency service 26.2; the presence of doctors on duty 45.6 percent; the explanations provided by nurses 44.8 percent; and the decrease in transfers of patients to other hospitals 39.4 percent.

In total, 49.8 percent of hospitalized patients aged greater than 15 years were satisfied with conditions of care in the hospital, including all aspects of care: reception, hospital room amenities, medical and para-professional, emergency services, and outpatient care.

Patients were most satisfied with the competence of the doctors (70 percent) and with the doctor's respect for the patient (73.4 percent). In contrast, other non-medical aspects of hospital care evoked discontent, including waiting conditions and hospital room amenities. There was also expressed discontent in the quality of the comportment of health-care providers, both doctors and nurses, with the patient, and the degree of encumbrances with both emergency and outpatient care.

Patients identified the majority of deficiencies as problems with organization and the training of caregivers in regard to their relations with patients. Nevertheless, the study concluded that hospital reform had had a positive impact on infrastructure and logistics. Better coordination with the primary health care centers (*Centres de Santé de Base - CSB*) and an increased number of intermediate centers appreciably contributed to remedying encumbrances with emergency services and outpatient consultations. To improve the quality of caregiver-patient relations, training of personnel by specialists was strongly recommended.

This study was considered a self-evaluation, which constituted an important step in the process of continued improvement of quality. In summary, the survey demonstrated an average global level of user satisfaction with the quality of care in the regional hospitals of 49.8 percent. The rate of satisfaction for reception was 49.5 percent and the completion of formalities for hospital admission. The quality of the meals had the lowest rate of perceived quality at 19.7 percent; the hospital room amenities 47.8 percent; the comportment and availability of nurses 54.5 percent and that of doctors 60.5 percent; emergency care 48.6 percent; and outpatient care 62.9 percent. In addition, 42.2 percent of those surveyed viewed an improvement in all aspects in the quality of care during the last two years, which coincided with the Government's hospital reform.

## 6. EFFORTS TO REFORM THE HEALTH SYSTEM

### 6.1. HEALTH SECTOR REFORMS

**Early Efforts.** Tunisia has always attached great importance to human development and, since independence, Tunisia has included efforts to develop and reform the social sectors in its economic development plans. During the first three five-year plans (1962-64; 1965-68; 1969-72) investments in health were made as part of the effort to reduce poverty. Emphasis was placed on the development of improved housing, sanitation, and access to potable water, as well as on disease prevention (e.g., immunizations, prenatal and maternity care) and family planning. While family planning efforts were of course in part intended to control population growth, it was also seen as a method to improve the health of mothers and infants. In terms of the health delivery system, “health regions” (*régions sanitaires*) were created and hospitals were classified into one of three categories, providing primary, secondary, and tertiary care, respectively. The goal of these efforts was to increase the availability of hospital beds to 1 per 1,000 population.

During the 1970s, the Fourth and Fifth Development Plans (1973-76; 1977-81) emphasized the development of a policy to improve the training of medical doctors, nurses, and other allied health personnel. In the 1980s the emphasis was on improving access to primary care throughout the country. This decade also saw two other important developments. First, the initial efforts to begin decentralization were implemented with the creation of regional health authorities (*Directions Régionales de Santé*). Second, in 1983, patient co-payments<sup>41</sup> were required for the first time to raise funds for the (public) health system which was coming under increasing financial pressure, and for which the then current health care financing mechanisms were inadequate to address.

The 1980s also saw the first of many efforts to improve and reform the health system. For example, in 1981, public hospitals experimented with billing social security for their services. And, in 1986, efforts were made to reform the social security law to allocate a defined portion of social security taxes for health care coverage and to include the provision for private sector delivery of health services. In that year, a large new public hospital opened. Whereas other Ministry of Public Health hospitals were governed by the law for Publicly Owned Establishments (EPA), this hospital was governed by the law for Publicly Owned Industrial and Commercial Establishments (EPIC). Thus, it was effectively an autonomous institution. The other efforts to reform the health system were unsuccessful and none were sustained.

**Health Sector Reform in 1990s and Beyond.** By 1987, when a new government took office, it was clear that the health sector was in crisis. The government therefore undertook an extensive analysis of the problems facing the health sector, and on the basis of that review, a new health sector strategy was developed. This strategy had as its three main objectives:

1. Further development of primary (basic) care through the implementation of a program to reinforce the delivery of health services by the PHCs
2. Improvement of hospital care through a reform of the structural and institutional aspects of the university hospitals<sup>42</sup>
3. A reform of the legislation regarding private health care providers.

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<sup>41</sup> A co-payment—*ticket modérateur*—is a (small) fee that the patient has to pay to obtain care.

<sup>42</sup> This reform was financed by the World Bank.

This strategy and the accompanying measures were intended to address a number of problems facing the health sector, the most important of which included: a significant increase in health expenditures (annual growth rates of more than 11 percent), insufficient (public) funding for the health sector, an inefficient (public) delivery system due to rigid administrative and budgetary procedure, a highly centralized system, a lack of well-qualified health care managers, and insufficient data on which to base decisions. Quality of care also became an explicit concern for the first time.

These reform efforts were to a great extent successful. A National Perinatal Program was established to improve maternal and infant care and outcomes. As a result, maternal and infant care was integrated at the primary care level, additional efforts were made to analyze the causes of maternal deaths, and improvements were implemented. Efforts to reduce maternal deaths continue today.

For university hospitals, a new legal entity was established, the Public Health Establishments (EPS), that provided less autonomy than the EPIC but more than the EPA, which normally governs public health establishments.<sup>43</sup> As a result of the reform, a total of 20 EPSs were created, each with its own board of directors, a general manager, and supervised by the State.<sup>44</sup>

To assist the hospital managers, a computerized management information system was developed, as was a handbook of standardized management procedures. The information system was used to analyze procedure-based unit costs, which served as a basis for a new billing system. The billing system enabled the EPS to receive direct reimbursement for services rendered to patients covered by the SS schemes. The EPS were thus able to increase the proportion of their budget covered by payments from these schemes, which also was among the reform's objectives.

In addition to these changes, the health sector reform included upgrading and improving the EPS' physical infrastructure and equipment, as well as training the management, maintenance, and medical/paramedical staffs.

To a large extent, the Ninth Development Plan (1997-2001) continued to address issues of financial sustainability, health sector efficiency, and quality of care, with a special emphasis on regional hospitals. As noted earlier, this plan was largely implemented through a Bank-financed project (from 1998-2003), which focused on the development of the infrastructure, equipment, and staff at regional hospitals. In addition, a number of reforms were carried out to increase RH autonomy, to reform its organization and management structure, and to introduce a billing system like the one in the EPS to improve the contributions from the SS funds to the hospital budget.

In addition to these improvements, another successful goal of the project was the computerization of all the regional hospitals, and electronically connecting them to the Ministry of Public Health's Information Center (CIMSP). Furthermore, a health management information system with performance management indicators was developed and implemented by the MOPH during the project. A particular concern of the Ninth Plan was the improvement of the quality of care, particularly in the area of pre- and post-hospital emergency care. A national strategy for improving quality of care was developed, as was a national strategy for emergency medical care. Both are in the process of being implemented.

Other noteworthy successes included an improvement in the basis on which hospital budgets were developed and negotiated. The health information system implemented in the RHs allowed the development of activity and cost-based budgets, which were then used to negotiate, with the MOPH, the

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<sup>43</sup> Law No. 91-63, July 29, 1991.

<sup>44</sup> A Board of Management of the Hospital Reform (CGRH), under the presidency of the Minister of Health, was established to coordinate the various activities and to ensure appropriate follow-up and execution of the project.

annual budgets for the RHs. This ensured both greater efficiency and cost containment than in the past and was associated with significant productivity increases among the RHs.

The reforms also included an upgrading of the medical staff's profiles (specialists) at the RHs, which was accompanied by significant investment—both quantitative and qualitative—in the staff of RHs. Finally, the reforms included a revision of the system of free care (AMG1 and AMG2) and a revision in patient co-payments.

The efforts of the Ninth Development Plan and the Bank's Health Sector Loan were to a great extent successful in reducing the rate of health care cost escalation (from 15 percent annually in the late 1980s to 10 percent annually in the late 1990s). Health care costs remain a significant concern, as does improving the health care financing system. Much effort was devoted during the Ninth Development Plan to study possible options for health insurance reform. As will be explained below, these efforts led to the approval on June 2, 2004, of a health insurance reform law, whose main objective is to increase the funding for health care through the establishment of a single health insurance fund, which will be funded by a significant increase in payroll taxes (and pension payments).

The Tenth Five-Year Development Plan (2002-2006) continues many of the foci of the previous plan. Specifically, it proposes to:

- Continue the consolidation of primary and preventive care and to promote healthy behavior and improve environmental health
- Improve access to specialized health care and continue to implement the National Strategy for Emergency Medical Care
- Develop the vital specialties and centers of excellence for high-cost treatments (*soins lourds*)
- Promote quality improvement through the development of human resources and the introduction of the concepts of evaluation and accreditation
- Further develop decentralization and improve the capacity to manage the health care system.

## **6.2. HEALTH INSURANCE REFORMS**

The first Tunisian health insurance scheme—the CNRPS—was established in 1951, as part of the social security system. Since then, that system has undergone numerous changes and expansions. In 1960, for example, the CNSS was established to provide coverage for employees in the private agricultural and non-agricultural sectors, and in 1982, it was further expanded to include self-employed workers. In 1995, the CNSS became responsible for the administration of the workers' accident and occupation health insurance. Finally, in 1996, efforts were initiated to reform the current system. After lengthy and difficult consultations with all stakeholders in the health sector, and after many changes to the proposed reform, a draft health insurance reform law was approved by the Council of Ministers on June 2, 2004.<sup>45</sup> It was subsequently approved by the Parliament in July 2004. A description of the health insurance schemes and details on coverage can be found in Section 4.

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<sup>45</sup> The subject of health insurance reform was first discussed at the Council of Ministers on February 16, 1996, then again on February 15, 2000, and finally approved on June 2, 2004 (Ministry of Social Affairs (2004): *A Report on the Project to Reform the Medical Insurance System*).

### 6.2.1. Insufficiencies of the current social health insurance system

Several major problems with the two social health insurance systems have been identified, including:

- **Segmentation of the system.** Separate funds for the public and private systems, which are legislated differently without coordination or harmonization. Both provide inadequate pooling and financing for the health care of each of the insured populations. In an effort to correct these insufficiencies, many employers are currently offering optional coverage in addition to the *mutuelles*, leading to double or even triple coverage for the same health conditions.
- **Unsound financial viability.** Inadequate public funding for the health care system, leading to reluctance by the public to use the public system and uncontrolled growth of the private sector. The expenditures of the social security system had a 15 percent annual growth rate in the last ten years, which seriously challenged the financial viability of the system. The current coinsurance levels cannot sustain the expenditures of the mandatory scheme of the CNRPS and can barely sustain the CNSS scheme. In addition, coinsurance rates are widely different between the public and private sector.

Table 6.1. Percent Contribution of Beneficiaries under CNRPS and CNSS Schemes

	Public Sector (%)	Private Sector (%)
Workers	2	4.75
Retired people	1	0

Source: MOSA statistics.

- **Low satisfaction level of beneficiaries.** The public sector is overwhelmed by a growing demand for high quality and timely health services. It is unable to meet these needs because of social security's inadequate contributions to the budget of the MOPH. Currently social security is financing only 23 percent of the budget, but in comparison, social security beneficiaries represent one half of the users of public facilities.

This situation led to the development of parallel structures to serve some subgroups of social security beneficiaries and similarly, the CNSS created its own polyclinics (there are six such clinics). There are also concerns and complaints by the private sector that services it provides are underutilized because of a lack of coverage by the social security schemes.

Failure to cover all eligible private sector workers (and their dependents) is in part due to the relative attractiveness of the AMG2 program. This may be linked to the requirement for the non-agricultural and self-employed to pay the entire 4.75 percent of the contribution. In the best case, those who do enroll in the CNSS are likely to underreport wages or income.

In addition, there are several problems in the health system that may impact the acceptance of the social health insurance law by the public, compliance in registration and payment of contributions, and responsiveness of the expanded health insurance system to the needs of the insured population. These include:

- Inadequate quality of care in the public sector
- Inadequate resource allocation to health promotion and prevention
- Inadequate integration and coordination between primary, secondary, and tertiary care.



### 6.2.2. *The principles of the reform*

In 1996, efforts were initiated to reform the health care financing system, through changes in the health insurance system (rather than through financing through general taxation revenues). The choice of health insurance was linked to Tunisia's historical commitment to financing social services through social insurance. The principle of developing health insurance within the broad social security framework, as opposed to an insurance system covering only health, was also maintained in the reform efforts.

After lengthy and difficult consultations with all the stakeholders in the health sector, and after many changes to the proposed reform, a draft health insurance reform law was approved by the Parliament in July 2004.

A recent Ministry of Social Affairs report (1) regarding the proposed health insurance reform states the principles underlying the reform as:

- To continue efforts to harmonize current insurance systems to progressively obtain a unified mandatory scheme that would cover all sectors adequately
- To establish the foundation for an integrated, compulsory social security system to ensure financial risk protection against both regular and catastrophic illness, but excluding non-essential or cosmetic services
- To introduce optional complementary insurance coverage in a manner that would avoid overlap between the basic and the optional coverage
- To separate the financing of health care services from the provision of care
- To organize cooperation between the social security funds and public providers in regards to health services fees based on real costs for the provision of care to social security beneficiaries
- To include the private health care sector in the coverage provided by the social security scheme in order to support and enable this sector in its efforts to serve the medical needs of the population in a nationally integrated health sector framework
- To set up cost control mechanisms and to define the responsibilities of all parties in this effort. This includes public or private providers or facilities and consumers of health services.

The reform is intended to lay the foundation for the creation of an integrated health care financing system managed by the social security system, which is supposed to provide financial risk protection for all non-essential services, both in the private and the public sector. This basic, compulsory coverage will be supplemented by optional insurance for services not covered by the basic system. The reform proposal emphasizes the need for cost control mechanisms.

The proposed law contains five sections and 29 chapters, which outline the general nature of the proposed reform. In addition to the principles stated above, other important aspects of the reform include the creation of a single National Health Insurance Fund (CNAM), which will provide exclusive coverage for the basic, compulsory scheme. This fund would also incorporate coverage for work-related accidents and occupational illnesses (currently managed by the CNSS). Furthermore, a National Health Insurance Council will be established to follow up and evaluate the performance of the health insurance system.

### 6.2.3. Characteristics of the proposed health insurance scheme

In order to clarify the role of all stakeholders and ensure equity between all of the different categories of social security beneficiaries, reform efforts are geared towards the establishment of a unified mandatory insurance scheme for all beneficiaries that would be under the management of the social security system.

Enrollment in this scheme would be open to the public and private sectors and would cover the beneficiaries and their dependants. In addition, optional coverage would be created to cover services not covered under the mandatory scheme or the co-payment part. This optional coverage would be managed by the CNAM in order to guarantee for all the beneficiaries adequate access to health services and coverage.

The objectives of the reform underline the fact that improving health care delivery to the population will be addressed following two complementary strategies: improving health services and improving the health insurance benefits package. In this report we are addressing both areas.

### 6.2.4. Financing and content of the reform

The health insurance reform is defined by a law that contains eight main points. These points are the product of a general consensus that was reached after negotiations took place between the stakeholders.

- *Implement a mandatory health insurance scheme.* This will guarantee complete coverage of expensive ‘heavy’ treatments and chronic diseases. In addition, it will provide modulated coverage for the rest of health services. Aesthetic or comfort services will not be covered by the mandatory scheme.
- A new institution will be created to manage this new scheme. As defined by the current law, it will be called (*CNAM*). This new scheme will be in charge of managing the legal issues of occupational accidents and diseases, currently managed by the CNSS.
- In addition to the mandatory scheme, an optional and voluntary plan will be available to cover the services that are not covered by the mandatory scheme. The management of this optional plan could be done by private insurances or by the *mutuelles*, but the CNAM could also offer it.
- In terms of mechanism of financing, active workers (and the self-employed) covered by the CNAM will pay a tax of 6.75 percent of their wages or income. For *employees*, this will be split between the employer and the employees so that the former will pay 4 percent and the latter 2.75 percent. *Self-employed workers* will be responsible for the entire tax themselves. For *recipients of social pensions*, a tax of 4 percent of the pension will be imposed to pay for this category of beneficiaries. This rate appears to be relatively low. It is important to mention that for the workers and unemployed social beneficiaries, these rates will be implemented progressively on a three- to five-year period.
- Eventually, all social security beneficiaries (currently 2,700,000) and their dependents will be covered by at least the mandatory scheme. In order to achieve this goal, a progressive method will be used to extend the plan to all of the different social and professional categories. The first to be addressed will be CNRPS beneficiaries (public sector beneficiaries) and the non-agricultural salaried workers of the CNSS. These two groups currently represent more than four-fifths of the beneficiaries (78 percent), or 2,109,000 people. In the second year after the implementation of the reforms, the program would be extended to the non-salaried workers and salaried workers of the improved agricultural sector. In the third year, the plan will be extended to the salaried agricultural workers.

- In the transitional period, the groups not covered in the first wave of implementation of the reform will continue to be covered under the same plan they had at the onset of the reform.
- The new law also includes the creation of a National Health Insurance Council to gather all of the different stakeholders. This new structure will be in charge of follow up and evaluation of the functioning of the health insurance scheme and propose necessary means to ensure its financial viability. It will also be in charge of controlling the rest of the mandatory health insurance schemes and the allocation of rents and other pensions as legally defined in the current social security schemes.
- In a similar way, the new law guarantees the maintenance of acquired rights for certain social and professional categories that are under particular insurance contracts, group insurances, or *mutuelles*.

In reality, the current law defines the fundamental legal environment in which the reform will take place and their general principles. For the procedural and technical aspects, the stakeholders took about one additional year to better coordinate their efforts, to be better organized and prepared to make this reform successful.

#### 6.2.5. *The three health insurance schemes*

The proposed reform will allow its beneficiaries to choose from the following insurance schemes:

- A public sector scheme
- A private sector scheme
- A reimbursement scheme.

Each of these schemes carries a set of benefits as well as cost control measures. The *public sector scheme* offers access to all services provided in the public system, including ambulatory and inpatient care, procedures and drugs that are contained in the hospital formulary. In order to encourage beneficiaries to choose this scheme, the required annual co-payment will be capped at approximately 500 TND (the equivalent of two months salary for a worker). Above this level, all additional costs would be borne by the CNAM. As is currently the case, certain types of public employees would be exempt from co-payments under this scheme.

The *private sector scheme*, by contrast, would enable beneficiaries to obtain care in the private sector. Beneficiaries would be required to choose a primary care provider, who will serve as a gatekeeper to specialist care (one of the proposed cost control mechanisms). Referral for certain types of specialist care, such as ophthalmology, gynecology, and pediatrics, would, however, not be required. The doctors participating in this scheme would have to agree to the fees and co-payments established by the CNAM and would not be able to bill their patients for additional fees (i.e., balance billing will not be allowed). The co-payment for services received under this scheme would exceed those for the public sector scheme to reduce the incentive for citizens to choose this option.

The *reimbursement scheme* is very similar to the current optional scheme of the CNRPS. It would allow the patient to consult any provider of care, irrespective of specialty or sector. In return, the patient has to pay for the care received and then request reimbursement from the CNAM. Fees and co-payments would also be established by the CNAM depending on the service provided and no balance billing would be allowed. Finally, total (annual) reimbursement would be capped at lower levels than that for the private sector scheme.

The details about the provider payment mechanisms and rates (including caps) will still require negotiations with the different stakeholders. The above schemes would initially cover outpatient care only. Hospital care would be covered only in the public sector, with certain exceptions. The reform envisions phased-in coverage of hospitalizations in the private sector, which would then be available to beneficiaries in the private sector and in the reimbursement schemes. The existing agreements for coverage of specialized services in the private sector (e.g., for hemodialysis, open-heart surgery, and other highly specialized care) would continue to be covered regardless of the scheme chosen.

### **6.3. THE STAKES OF THE CURRENT REFORMS**

#### *6.3.1. Preserve acquired strengths*

As shown in this report, the performance of the Tunisian health system is good compared to other countries with similar development indicators. This is why it is essential to preserve the current strengths.

The Tunisian government is aware of this issue and is planning to progressively implement the reform to avoid abruptly destabilizing the entire system. In particular, the possibility to access private providers should be open in a stepwise approach, beginning with the services that are overwhelmingly provided at public hospitals. As a consequence, the contribution rate would be increased in a parallel way. However, a specific scenario of implementation of the reform still needs to be defined.

#### *6.3.2. Multiple objectives*

The reform is trying to achieve several objectives at the same time, and some of these may be contradictory:

- Increase of the global resources of the system through an increase of contribution rates
- More equitable financing of the system by aligning public and private sector rates and having retired people contribute
- Have a financially viable private sector
- Adjust the participation of the private sector to the needs of the country
- Remove the excessive demand load from some public hospitals services
- A greater choice of providers for social security beneficiaries
- A change in distribution of health expenditures: increase the share of socialized expenditures (the share of direct household expenditures reached 50 percent) and reduce the weight of the State compared to the weight of social health insurance
- Rationalize the system by creating a unique health insurance fund, limiting the role of private insurances to provide only supplementary coverage and separating the functions of health insurance managers and polyclinic managers.

Reaching all these objectives will be complicated and will require fine-tuning in the implementation of the reform. For example, there are several potential contradictions:

- The will to relieve some overloaded hospital services without destabilizing them by an important decrease of their use and, at the same time, letting the beneficiaries making their own choice.
- The will to make the private sector financially viable and the need to maintain the financial equilibrium of the system.

### *6.3.3. The three insurance schemes*

One of the major factors that will determine the success of the reform is the distribution of beneficiaries among the three reimbursement schemes. This choice is up to each individual to make and switching between the schemes will be possible once a year. There will be financial incentives in order to help orient people's choices in a direction that is favorable to the objectives of the reform (reimbursement will be more or less favorable depending on the scheme).

However, it will be difficult to anticipate the people's choices and reaction when confronted by these incentives. Moreover, the implementation of the three schemes would bring about some complicated issues in administration, such as problems with information systems and processing of the reimbursements.

Finally, the existence of three schemes within a single insurance system will create financial transfers between the schemes. If the CNAM is in charge of balancing the global budget, each particular scheme will not have balancing obligations. It will therefore be difficult to determine if this system of crossed subventions will benefit the ones that need it the most.

### *6.3.4. Financial sustainability*

On the whole, the reform will increase the amount of available resources, which should automatically increase the expenses as a result. Particular attention should therefore be given to cost control issues. For the first time, services provided by the private sector will be partially covered by the health insurance system. Therefore, the tariffs on which the reimbursements will be based, and the levels of co-payment, are central issues for the health insurance system and for the private providers.

Finally, there are two issues regarding resources: will the rate of 6.75 percent for workers be enough to ensure the financial viability of the system? Is it sustainable for the Tunisian economy? Is there a risk of tax evasion, knowing that currently only 87.4 percent of people who should be contributing to health insurance really contribute? If this is the case, what will be the strategy to avoid this type of behavior?

### *6.3.5. Management of the system*

Implementation of the reform will require developing advanced information systems to manage the affiliations and the reimbursements but also control the expenditures and the quality. Important needs in the area still need to be met.

Technical competencies of the future health insurance managers are also a concern. Is the current staff of the CNSS and the CNRPS able to manage such a complex new system?

### *6.3.6. The role of the CNAM in the management of the supplementary coverage*

According to the law passed in August 2004 (Article 20), the CNAM will be able to manage a supplementary insurance scheme if needed. Such stipulations can raise issues: in which instance will this be "needed"? If CNAM has to provide supplementary coverage, will it not prevent it from fulfilling its main task in the mandatory scheme by siphoning off a significant part of its resources?

#### 6.3.7. *Health services*

One of the major problems of the Tunisian system, which has been identified in this report, is the important inequities between regions in terms of health services. These inequities, nevertheless, will not be reduced by the reform.

Another major imbalance concerning health services is the relative lack of ability of the public sector providers to adapt to the requirements brought on by the epidemiologic transition. A growing need for sophisticated heavy equipments is one outcome, and the traditional emphasis on primary care centers cannot solve the problem. This raises issues about the distribution of the equipment and the capacity of the public facilities to adapt to these new challenges. (How can we design access to care to actually allow the entire population to have access? How can we organize the coordination of the different levels of care in a rational way, knowing that it is not possible to have the most sophisticated equipment in each regional hospital?)

Finally, some public providers have performance areas that are in need (e.g., lack of resources, low staff motivation). This can be explained by the significant development of the private sector in the last few years. It is not clear how the reform will help deal with these challenges. Bringing more resources into the system through higher contributions will not automatically solve the problem.

## **7. A PROPOSED STRATEGY FOR THE HEALTH SECTOR**

The Tunisian health system has performed remarkably well, although annual health expenditures are still below USD 150 per capita. Tunisians enjoy relatively high life expectancy and low infant mortality, and health coverage has been extended to a large majority of the population. However, Tunisia faces large challenges in building on these successes and ensuring the financial sustainability of the health system in the long term. In particular, the health insurance reforms currently proposed offer opportunities for addressing these challenges. But they also raise a series of important policy questions that will need to be addressed in the short run as Tunisia moves forward with the implementation of the reforms.

In this section, we summarize the principal issues facing the Tunisian health sector and propose recommendations focused on health insurance, financing, and coverage. Important aspects also included relate to the performance of the public health system, quality of care, and information systems.

### **7.1. PLAN FOR HEALTH SECTOR FINANCING THAT IS RATIONAL AND SUSTAINABLE**

Health sector financing in Tunisia has increased in recent years, both in absolute terms and relative to overall economic performance. The percentage of GDP devoted to health increased from 4.2 percent in 1985 to 5.6 percent in 2003. Annual health expenditures per capita have quadrupled from 39 TND in 1985 to 184.5 TND in 2003, representing an average nominal annual growth rate of 10 percent. However, as Tunisia continues to traverse the epidemiologic transition with increasingly expensive chronic disease conditions, the need for additional health sector funding will become more acute over time.

Additional funding for the health system should come from public funds and private capital. Households – the end users of the health system – are already paying for almost half (49.4 percent) of health sector financing, with the remainder split between the national budget and Social Security. The high level of financing paid directly by households represents potential problems both in terms of effective coverage of the system and financial protection of individual families. As health insurance is expanded in terms of benefits, cost-sharing should focus predominantly on premiums, with co-payments kept at a moderate level to ensure that financial barriers at the point of service are maintained at a relatively low level.

The design of financing mechanisms is essential to the success of the reforms. The contribution rate must be high enough to provide sufficient resources to the health care system without handicapping the Tunisian economy. In the private sector regime (CNSS), the rates are planned to progressively increase from 4.75 percent of salary in 2005 (1.32 % paid by the employee and 3.43 % by the employer) to 6.75 percent in 2007 – to be shared by the employer and the employee. For pensioners, contributions (0% in 2005) will likewise increase and will be capped at 4 percent of income in 2009. For workers and unemployed social beneficiaries, these rates will be implemented progressively on a three- to five-year period. In the public sector regime (CNRPS) premiums will start at 2 percent of salary on July 1, 2005 (1.0 percent paid by the employer – the government – and 1 percent paid by the employee) and increase to 6.75 percent in 2007 (4.0 percent employer and 2.75 percent employee).

Whether 6.75 percent of salary is the correct premium level for the long-term financial sustainability of the CNAM is an open question. The CRESS has conducted a series of actuarial studies that show financial sustainability over a 15-year period with this premium level, but it is possible that a variety of upward pressures on health spending – mentioned above – will create a financial disequilibrium for the CNAM. It is also not known what impact the contribution rate might have on overall economic growth.

The government should carefully consider the level of payroll taxes envisioned to finance the CNAM. Given the relatively high mobility of workers and firms between the formal and informal labor sectors in Tunisia, mandating participation does not by itself ensure increasing or even maintaining enrollment and revenues. If there is a gap between the perceived costs and benefits of participation, Tunisia may experience widespread evasion of the health insurance payroll taxes, which would lead to wider tax evasion beyond the health sector.

Currently only 85 percent of people who should be contributing to health insurance really contribute. It is essential that the government address the tax evasion issue. The following solutions might be considered: make sure that the SHI package is more attractive than the AMG; make health services available for informal workers, which may not be the case in rural areas; ‘market’ the reform and communicate its advantages; implement innovative techniques in order to collect the contributions of informal workers (assessment of their income on the basis of property, payment of flat-rate contributions instead of a percentage of their income); and strengthen the control of access to the AMG system.

Finally, the distribution of beneficiaries among the three reimbursement schemes is very difficult to forecast and will significantly influence the level of expenditure of CNAM. For these reasons, additional precise actuarial studies covering a variety of scenarios for the proposed reform are highly recommended in order to assess both the financial impact of the reform and the level of contribution rate necessary to cover the costs.

It is also important to point out that, as coverage expands to informal sector workers, the social security system will almost certainly require a cross-subsidy from general government revenues; since many segments of the Tunisian population will not be able to fully support the cost of their health care. Subsidization of social security through general tax revenues is also critical for ensuring the equity of the financing system. Therefore, it will be important to accurately project and plan for the additional subsidy necessary as the social security system continues to expand its coverage.

## **7.2. Cost Control Strategy**

It will be essential for the success of the reform to define a cost control strategy, since most existing SHI systems face severe cost containment issues. In this respect, negotiating agreements (*conventions*) with providers is a key function that will strongly influence the financial viability of the new system. First, the negotiation of the tariffs that will be used to calculate the amount of the reimbursement guaranteed by the CNAM (*tarifs de référence*) will be of critical importance. They will have to be set at a level compatible with the balance of CNAM’s budget, as anticipated by sound actuarial studies. Indeed, foreign experience suggests that once reimbursement levels are set, they may be increased but not decreased.

Second, it will be important to use the conventions in a ‘strategic’ way, by defining a set of rights and obligations for providers in accordance with the interest of the system: a good level of remuneration against the obligation to comply with certain rules (e.g., respect to medical best practice, obligation to share information, prescription of generics, compliance with a global budget.) If these rules are not followed, effective sanctions should be applied. Examples of the sanctions are financial penalties, and exclusion of providers from the conventional system. This quid pro quo approach often lacks in countries having similar organizations, which explains part of their difficulties to regulate the system (e.g., France).

Finally, an important outstanding question is the composition of the benefits package and levels of co-payments, as well as the establishment of mechanisms for the eventual adjustment of these key parameters, which will affect utilization, costs, and revenues. According to the law, this is the government’s responsibility.



### **7.3. Adverse Selection and Financial Protection for the Poor**

As currently designed, the reforms may lead directly to a serious problem of adverse selection among the three different schemes (*filières*). Private providers might try to attract wealthy patients to join the private sector scheme, especially if they think that the contractual tariffs are too low. Indeed, they could ask their patients for additional out-of-pocket payments to compensate this ‘insufficient’ level of remuneration, even though it is prohibited by law. Poor patients would then tend to stay in the public system.

For these reason, and because of the administrative complexity imposed by the three different schemes, it may also make sense to start the new health insurance system with only one reimbursement scheme rather than the three envisioned in the reforms. Instead, different tariffs and/or levels of co-payment could be defined for certain services depending on whether they are provided in the public or private sector. This solution would be much more simple to implement and flexible than the three schemes scenario, while giving to the government the same possibility to influence the situation in terms of health care provision.

A related point is that, as the importance of individual and household-level expenditures for health care increases relative to institutional and third-party spending, the health system will need to take measures to ensure financial protection for its beneficiaries – meaning that not only do individuals have access to the health services that they need, but also that paying for these services does not jeopardize other essential household spending.

Currently, very little is known about the relative incidence of health spending in Tunisia – in other words, how much do relatively wealthy population groups contribute to the health system, in absolute terms and relative to their incomes, compared to relatively poor groups, and how much do these groups get out of the health system? In order to properly adjust the current AMG systems and to design additional measures to limit out-of-pocket payments and ensure access to the health system for relatively poor population groups, additional studies of the relative financial contributions and potential barriers to access to health care will be important (see Section 7.6 below).

### **7.4. Quality and Performance of the Public Service Delivery System**

#### *7.4.1. Quality of care*

In order to make further progress in improving quality of care, Tunisia will need to confront the fact that much of the existing structure and organization in the public system is not optimal. The current system of rigid civil service rules, centralized decision-making (despite the somewhat increased autonomy of secondary- and tertiary-care hospitals), and use of global budgets and salaried doctors provide few incentives to provide good quality of care. In addition, there is a need to enhance accountability related to quality of care. Creating such incentives and accountability is likely to require a combination of both organizational and provider payment reforms, and, preferably, a change in civil service rules – none of which will be easy to accomplish.

Since much care is currently delivered by the private sector, it is important to develop mechanisms that create both incentives and accountability for quality of care in that sector. The challenge here will be to develop appropriate regulatory and licensing mechanisms such as accreditation of providers. The accreditation function requires setting minimum acceptable standards for a health care provider to enter into an agreement with the CNAM – these standards could include a minimum number of beds, and the availability of trauma or blood services. The CNAM will need to develop a sample contract for all relevant provider levels. In addition to one-time accreditation, a separate key function will be the performance of periodic audits of providers to ensure that standards are maintained.

Given the increased burden of chronic diseases, Tunisia also faces a major challenge in improving the continuity of care for these conditions. Currently, there is limited collaboration and coordination between the different levels of care and different providers. A major challenge therefore is how to better integrate primary, secondary, and tertiary care. This task is likely to involve the reorganization of the MOH and the public sector delivery system. It will also require improving the collaboration between the MOH and the professional organizations in order to develop and implement effective clinical guidelines and protocols. The successful example of the efforts to improve maternal and infant care is an excellent model for such future collaboration.

#### *7.4.2. A national health master plan*

A health master plan is a useful tool to plan and allocate health resources in both the public and private sectors, which may entail health facilities, manpower, and medical equipment. Such a plan requires the establishment of national health guidelines and standards; analysis of the population's socioeconomic status, demographic and epidemiologic profiles, and health needs; and mapping the existing health infrastructure and its utilization in order to reconfigure the existing infrastructure and identify the location and level of future investments.

Tunisia currently has a good health map (*carte sanitaire*), which can be used as a basis for developing the national health guidelines and a national health master plan. The key deficiency currently is the lack of adequate information on the private sector. The size of the Tunisian population (just under 10 million) would suggest that the number of tertiary (and possibly also secondary) hospitals may be too large to ensure sufficient volume at each site to lead to adequate quality of care for many procedures. Greater regionalization of a number of specialties may be politically difficult, but will be necessary for quality improvement.

In particular, primary health care services clearly have a vital role to play in disease prevention, and hence can have a long-term impact on reducing the burden of disease and the costs of higher level of services including hospital admissions as it can reduce the incidence or severity of a particular condition. Tunisia has effectively used its public primary health care network to combat communicable diseases and common health problems of mothers and children, leading to significantly improved health outcomes.

This primary health care-based model, which was effective during the early stages of the epidemiologic transition in Tunisia, is less so now. Today, the average number of outpatient visits per capita is only 1.06, with wide regional variation. 73 percent of the primary health centers are open for medical consultations three days or less per week. Given the increasing disease burden related to chronic conditions, the public primary health care network needs to be reinvigorated, and its role expanded to include the prevention and treatment of a range of chronic diseases. This would require training service providers in new protocols as well as improving the effectiveness of the referral system. Even though the health insurance scheme for the public sector does not require referral, those enrolled in the other two schemes living in remote or rural areas where private providers are limited may depend on public providers at the PHC level for referral.

#### *7.4.3. Allocative efficiency*

The concept of allocative efficiency – ensuring that health dollars are spent in such a way as maximize health outcomes – is closely related to the allocation of resources and the health master plan discussed above. To improve allocative efficiency to meet Tunisia's evolving health needs, the hospital sector is also in need of restructuring and rationalization, in terms of the size, level, and type of services offered. Local hospitals have approximately 17 percent of the total bed stock in the public sector, and very low occupancy rate of 35.9 percent. This may be indicative of either an excess capacity in terms of inpatient

beds or an underutilization of inpatient services, or both. Moreover, the recurrent cost per inpatient day at the local hospitals is almost 1.8 times higher than that of university hospitals, while versa the recurrent cost of an ambulatory visit at university hospitals is more than four times higher than that of local hospitals. Since these costs exclude salaries, which are paid directly by Government revenues, direct comparisons are difficult. However, it is clear that university hospitals receive a substantial public subsidy on top of the financing for their salaries, which makes their performance relatively less efficient than other levels of the hospital system.

Local hospitals are thus functioning like specialized outpatient clinics with costly inpatient services. Some of these hospitals could be limited to providing specialized ambulatory care; others may be converted into “low-intensity” hospitals. Policy options in this regard include the following:

- Convert smaller local hospitals, with 15 beds or less, into specialized polyclinics that provide only outpatient services including selected specialties.
- Convert some of the local hospitals into “low-intensity hospitals”. It is important to look into the effectiveness of re-designating some of the local hospitals, on a pilot basis, to provide rehabilitation services for early discharged cases from the regional hospitals.
- Upgrade the few large and best utilized local hospitals into regional hospitals, in areas where no similar facilities exist within reasonable proximity.

Regional hospitals and the EPS have more than 80 percent of total beds in the public sector. Despite improved performance in the last few years, these hospitals are not performing optimally. Tunisia’s 34 regional hospitals have seen an increase in their admissions and inpatient days, and a decrease in their average length of stay (ALOS) to 4.4 days. Their occupancy rate, while improved, stands at just 57.9 percent, far below the internationally considered minimum occupancy of 80 percent for an efficient utilization of the invested capital and human resources at that level. The 22 EPS account for 45 percent of total hospital admissions and 61 percent of the total number of hospital days in public facilities. The ALOS in these hospitals is estimated to be 7.7 days, with an occupancy rate of 79.3 percent.

Local hospitals have very low utilization rates, and could be re-designated to provide care for the cases that are discharged early from the EPS or regional hospitals. This would require the development of the nursing staff skills in the local hospitals to be able to manage the cases that require rehabilitation. Another approach, targeting the clinical care model, involves the use of "Integrated Care Pathways" (ICP), also known as anticipated recovery pathways. The ICP specify in advance the detailed plan of care to be executed for a particular condition, including the timing of different investigations, procedures, and key events such as discharge. Health system staff can then monitor the progress of care against the plan, note variances from the plan, and make suggestions for continuous efficiency and quality improvement. In Tunisia, the ICP approach may be relevant to the EPS, particularly if it is linked to the Quality Improvement program.

Additionally, utilization review is a clinical and managerial audit technique developed to ensure that the hospital admission was necessary, the pre-surgical hospital stay was not long, and the hospital stay was not prolonged unnecessarily. In Tunisia, such an approach could be piloted in the EPS for services that exhibit excessive occupancy rates, which may affect the quality of care.

Another approach to improve allocative efficiency is to employ user charges and co-payments as a measure for controlling and guiding utilization so that patients have incentives to use the health system efficiently and rationally. For inpatient services, effective user charges should be able to distinguish between appropriate admission, that is, not to deter patients from admission when treatment is needed, and inappropriate admission, that is, to deter only those patients who do not need admission. A differentiated user charge or co-payment can shift some of the utilization of hospital services to health centers, as well as rationalize the use of resources across hospitals (regional versus local hospitals) and

within the hospitals (general versus specialized services), and as such would improve hospital efficiency. Another application of user charges may be to the AMG program. For outpatient and basic hospital inpatient services, beneficiaries of the AMG1 scheme could be required to pay a small fee at the EPS level for services that are provided without charge at the regional hospital level or lower – thus freeing up resources at the EPS to handle more acute and complicated cases.

## **7.5. INFORMATION SYSTEMS**

Currently, public sector providers are not well prepared to use information to adapt to technological change and the realities of Tunisia's epidemiologic and demographic transition. There is a growing need in the health sector for information technology. The implementation of the proposed reforms will require extensive investments in information systems – to manage the affiliations and the reimbursements, and also to monitor expenditures and quality of care. A related priority will be in-depth training for future health insurance managers to manage relatively complex information systems.

At a minimum, the information systems required will include: (1) a membership data base; (2) a management information system (with data on revenues, providers, benefits payments, pharmaceuticals, and liabilities); (3) health insurance system activities; and (4) utilization information. A system to track quality assurance data will also be important once the new system is implemented and functional.

## **7.6 administrative capacity within the CNAM**

The success of the reforms will depend crucially on the administrative capacity of the CNAM to apply the new regulations. As a result, one of the key tasks early in the implementation of the reforms will be to ensure that the CNAM has adequate skills and capacity in the following areas.

- *Collection of resources, reimbursement of beneficiaries and payment of providers.* Under the new law, the CNPOS and the CNSS will continue to collect contributions and transfer them to the CNAM. Therefore, there will be a large financial pool, managed by the CNAM, from which each provider/beneficiary will receive payment. The CNAM will have responsibility for assuring the actuarial and financial viability of the funding pool. It will also have to negotiate with the CNSS and the CNOPS the conditions of transfer of the contributions, and implement appropriate financial links with these institutions. Finally, the actual transfer of funds to beneficiaries and providers will be either electronically managed, based on the flow of information from providers (see section 7.5 on Information Systems, above) or based on the submission of bills and supporting documentation.
- *Payment mechanisms.* The CNAM will have a series of decisions to take on the appropriate purchasing and payment mechanisms to implement as coverage is expanded and additional providers are brought in the network of approved providers (see Section 4.2.4 – Provider Payment Methods). In the initial stages, purchasing relationships are likely to primarily use fee-for-service payment arrangements, based on the submission of bills from providers to payers. Setting up and implementing adequate fee-for-service reimbursement mechanisms will require expertise in setting reimbursement levels, reviewing claims, and regulating service provision. In the future, the CNAM may want to combine fee-for-service reimbursement with either case-based payment or capitation – allowing for more sophisticated combinations of incentives for service provision, cost containment, and quality of care – and entailing additional significant information needs.
- *Actuarial expertise.* Projection of costs and loss ratios, and setting premium levels, and provider reimbursement levels are the most demanding functions that the CNAM will have. This requires CNAM staff with considerable actuarial skills and experience.

- *Claims review.* Reviewing a sub-sample of the bills submitted by providers will be a key function of the CNAM, tightly linked to regulation, cost containment, and quality assurance. Claims should be reviewed on a random basis – for example, 2 percent of all bills submitted, chosen randomly – in order to ensure impartiality.
- *Ensuring separation of key functions within the funding agencies.* The functions of quality control, payment, and regulation should all be administratively separated within the CNAM – in order to assure that each of these key functions can be performed independently.

## 7.7 Next steps

### 7.7.1 Transitioning to the Reforms

The transition from the current situation to the full implementation of the health insurance reform presents a series of serious challenges for the Tunisian government. In general, the State remains the “guarantor” of the system and should therefore ensure that the functioning of the health insurance system would allow the achievement of the ultimate health system goals (quality, equity, etc...). To this effect, the State should be positioned in a situation that would provide the oversight of the CNAM, define the types of services, and establish the co-payment levels. Among the most important technical, financial, institutional, and political issues that will need to be addressed are the following:

- *Define a cost control strategy.* Cost escalation is a major problem in most existing SHI schemes. In order to address this issue, it will be necessary to define a cost control strategy. The key elements of this strategy will be the content of the convention between the CNAM and the providers (level of the *tarifs de reference*, rights and obligations of providers, possible sanctions), the composition of the benefits package and levels of co-payments, as well as the establishment of mechanisms for the eventual adjustment of these key parameters, which will affect utilization, costs, and revenues.
- *Define the benefits package.* There are several challenges related to defining the benefits package. One is to ensure that it is actuarially sound in relationship to the financing of the new system. A second is to standardize the package across the different sub-sectors of the new system, including the current CNSS and CNRPS systems. Additionally, it will be necessary to determine the level of subsidy for the CNAM after its implementation and as coverage is extended to poorer population groups.
- *Establish hospital reimbursement rates to encourage both productivity and efficiency.* In order to encourage competition among public and private providers, it will be necessary to introduce payment mechanisms that reward efficiency and are based on production.
- *Address adverse selection and ensure financial protection for the poor.* Because of adverse selection, and the administrative complexity imposed by the three different schemes, it may make sense to start the new health insurance system with only one reimbursement scheme rather than the three envisioned in the reforms.
- *Develop a National Health Master Plan.* A health master plan is a useful tool to plan and allocate health resources in both the public and private sectors, which may entail health facilities, manpower, and medical equipment. Such a plan requires the establishment of national health guidelines and standards; analysis of the population’s socioeconomic status, demographic and epidemiologic profiles, and health needs; and mapping the existing health infrastructure and its

utilization in order to reconfigure the existing infrastructure and identify the location and level of future investments.

- *Strengthen Information Systems.* At a minimum, the information systems required will include: (1) a membership data base; (2) a management information system (with data on revenues, providers, benefits payments, pharmaceuticals, and liabilities); (3) health insurance system activities; and (4) utilization information. A system to track quality assurance data will also be important once the new system is implemented and functional.
- *Ensure Adequate Administrative Capacity within the CNAM.* A key task early in the implementation of the reforms will be to ensure that the CNAM has adequate skills and capacity in the following areas: (1) collection of resources, reimbursement of beneficiaries and payment of providers; (2) payment mechanisms; (3) actuarial expertise; and (4) claims review.

### 7.7.2 Additional Studies

As Tunisia enters into the significant health reforms planned, a series of additional studies will be very useful in making key policy decisions. Among the essential studies that should be completed are the following:

- *A study of the economic impact of the payroll tax for health insurance.* The current proposal for financing the CNAM call for a payroll tax of 6.75 percent wages. The impact of this additional tax on macroeconomic performance, the unemployment rate, and tax evasion are all unknown factors that should be analyzed carefully prior to finally establishing the contribution rate.
- *Actuarial studies.* Actuarial studies have shown financial sustainability over a 15 year time period with the 6.75 percent contribution level, but it is possible that a variety of upward pressures on health spending, evasion, and adverse selection will create a financial disequilibrium within the new system. For these reasons, additional precise actuarial studies covering a variety of scenarios for the proposed reform are highly recommended – in order to assess both the financial impact of the reform and the level of contribution rate necessary to cover the costs.
- *Analysis of the relative benefits and financing burdens of the proposed system.* Currently, very little is known about the relative incidence of health spending in Tunisia – in other words how much do relatively wealthy population groups contribute to the health system, in absolute terms and relative to their incomes, compared to relatively poor groups, and how much do these groups get out of the health system? In order to properly adjust the current AMG systems, and to design additional measures to limit out of pocket payments and ensure access to the health system for relatively poor population groups, additional studies of the relative financial contributions and potential barriers to access to health care will be important.

In order to understand the impact of the reforms on relatively poor population groups and the need for subsidization of the health insurance system with general tax revenues, it will also be important to analyze budget and social insurance funds are flowing and who are benefiting from these services. This analysis could be done using a combination of utilization data from households and facilities, combined with public expenditure data, to estimate which population groups are using which types of services.