



Myers-JDC-Brookdale Institute
Smokler Center for Health Policy Research
Jerusalem



Jewish Healthcare Foundation
Pittsburgh

HEALTHCARE IN ISRAEL FOR U.S. AUDIENCES



Bruce Rosen

Myers-JDC-Brookdale Institute

Prepared at the Request of the Jewish Healthcare Foundation

Companion report to:

Healthcare in the U.S. and Israel: Comparative Overview

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This report is being prepared within the context of an intensive, multi-staged collaboration between the Myers-JDC-Brookdale Institute in Jerusalem and the Pittsburgh-based Jewish Healthcare Foundation. The goal is to enable policymakers in the US to draw lessons from Israeli health care, and vice versa.

This is the second of two overview documents:

- ❖ *Healthcare in the US and Israel: Comparative Overview*
- ❖ *Healthcare in Israel for US Audiences*

The former may be purchased from the JHF or the MJB Institute and both can be downloaded from the JHF and MJB websites.

The second phase of the project includes four monographs:

- ❖ *The Role of the Government in Israel in Containing Costs and Promoting Better Services and Outcomes of Care*
- ❖ *Primary Care in Israel: Accomplishments and Challenges*
- ❖ *How Health Plans in Israel Manage the Care Provided by their Physicians*
- ❖ *The Medical Workforce and Government-Supported Medical Education in Israel*

These can also be downloaded from the websites.

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TABLE OF CONTENTS

Foreword: Karen Wolk Feinstein, PhD, <i>President and CEO, Jewish Healthcare Foundation</i>	1
1. The Societal, Historical and Ideological Context of Israeli Healthcare	2
1.1 Demographics and Economics	2
1.2 The System of Government	3
1.3 Historical Development of the Health System	3
1.4. Values Underlying the Israeli Healthcare System	4
2. Health System Overview – Structure, Financing and Expenditures	5
3. What is Included in the Basic Benefits Package	7
4. Health System Financing and Expenditures	8
4.1 How is the Global Budget Set?	8
4.2 What are the Main Sources of Financing?	8
4.3 Expenditure	9
4.4 The Process for Prioritizing Resources	10
5. Resource Allocation: Reimbursement Systems	11
5.1 From Government to Health Plans	11
5.2 From Health Plans to Physicians	11
5.3 From Health Plans to Hospitals	11
5.4 From Hospitals to Physicians	12
6. Resource Use Rates	12
6.1 Beds	12
6.2 Physicians	14
7. Quality Monitoring	15
7.1 Monitoring Quality of Care in Hospitals and Other Facilities	15
7.2 Monitoring Quality of Care in the Community	16
8. Health IT	18
8.1 The Societal-Technological Context	18
8.2 Community-Based Systems	18
8.3 Hospital-Based Systems	20
9. Health Outcomes	21
References	25

List of Tables and Figures

Table 1: Number of Beds in Acute Care Hospitals, Psychiatric Hospitals and Long-Term Institutions, 1980–2005	23
Table 2: Hospital Data, 1980–2005	23
Table 3: Acute Care Beds in General Hospitals, by Ownership, 2007	23
Table 4: Newly Licensed Physicians, by Location of Medical Studies	24
Table 5: Trends in Total Expenditure on Healthcare in Israel, 1990–2005	24
Figure 1: Health Plan Market Shares, 2008	6
Figure 2: Percentage of Elderly among Health Plan Members, 2008	7
Figure 3: Healthcare Expenditures, 2004, by Operating Sector	9

FOREWORD

Israel's healthcare system has significant relevance and important lessons to lend to healthcare reform efforts in the United States. In 1995, as the US failed to enact healthcare reform, Israel achieved significant redesign of its healthcare system. Building on HMO concepts pioneered in the US, Israel provided universal coverage and saw improvements in its population's health. Fifteen years later, with four competitive health-maintenance organizations providing universal coverage, Israel's per capita costs are half those of the United States and its outcomes in many areas are superior.

Some of the differences between the two systems emerge from a divergence in basic values: in Israel healthcare is a "universal good," which society is responsible for making available to all its members, while in the US, healthcare is an individual good that is "organized" largely through market forces, and includes many for-profit actors. This basic difference set in motion a series of processes that yielded, in the US, a system involving multiple, competitive providers and payers emphasizing high yield, acute care, inpatient health information technology (HIT) and expensive medical education, but also cutting edge R&D. By contrast, Israel's emphasis on providing universal coverage prompted the development of a system focused on improving population health efficiently via an emphasis on primary care, investments in outpatient HIT and heavily subsidized medical education.

In important respects, the US health reform debates have been about the best ways to move the US toward a more integrated model, through which payment is aligned with care delivery and targets safety, efficiency, and quality. Therefore, as the US, is encouraging regional experimentation with new ideas for strengthening primary care, containing costs, and requiring multi-provider accountability for coordinated high quality care, there is much to learn from Israel, where these concepts are already at work.

To explore key lessons from the Israeli system for the US, the Jewish Healthcare Foundation engaged the Smokler Center for Health Policy Research at the Myers-JDC Brookdale Institute in Jerusalem – an affiliate of the American Jewish Joint Distribution Committee – to prepare a series of monographs comparing the two systems along dimensions critical to US reform efforts. The monographs offer in-depth analyses of how Israel addresses questions that remain at the heart of the US delivery system transformation:

1. What is the role of government in containing costs, prioritizing resources within budget constraints, and promoting better services and outcomes of care?
2. How do the overall intent, structure and financing of Israeli HMOs create incentives for sophisticated primary care delivery models?
3. What are the multiple consequences of low cost of medical education on the healthcare system?

This document provides the in-depth source material on the Israeli healthcare system for the companion document entitled *Healthcare in the U.S. and Israel: Comparative Overview*, which was prepared by Bruce Rosen of the Myers-JDC-Brookdale Institute and Keith Kanel of the Jewish Healthcare Foundation.

Karen Wolk Feinstein, PhD
President and CEO, Jewish Healthcare Foundation

1. THE SOCIETAL, HISTORICAL AND IDEOLOGICAL CONTEXT OF ISRAELI HEALTHCARE

1.1 Demographics and Economics

Israeli Demography

The State of Israel was established in 1948. At the end of 2007, Israel had an estimated population of 7.2 million, of whom 76% were Jewish and 17% were Muslim Arabs; other minority groups included Christians (3.2%) and Druze (1.7%) (CBS, 2008). Population density is among the highest in the Western world, with 311 people per km². More than 60% of the population is concentrated in the narrow strip along the Mediterranean Sea and the population density in this area is several times higher than the national average.

Israel's three largest cities are Jerusalem (733,000 inhabitants), Tel Aviv (384,000) and Haifa (266,000). Israel recognizes Hebrew and Arabic as official languages, and English and Russian are the most commonly used foreign languages. The Jewish population is largely urban; less than 10% live in rural areas, principally in cooperative communities. Most of the Arab population lives in non-urban settings, primarily small- to medium-sized towns.

Israel is a relatively young society: 28% of the population are younger than 15 years and only 10% are older than 64. Israel's general population is still significantly younger than that of other Western countries. Its relatively high total fertility rate (2.88 births per woman) has been accompanied by phenomenal growth in the absolute number of elderly people. Since 1955, the elderly population has increased eightfold, while the general population has increased approximately fourfold. The proportion of elderly people in the population is expected to reach 12% by 2020 and 18% by 2050.

Immigration has played a critical role in the demographics of Israel. When the State was declared in 1948, its population was 873,000. In its early years, the population increased due to large waves of Jewish immigration from Eastern Europe and the Arab countries of the Middle East and North Africa in the 1950s. As a result, the population passed the 2 million mark within a decade of Israel's founding. In the 1970s, there was another major wave of immigration, this time from the Soviet Union. Immigration rates were lower in the 1980s and surged again in the 1990s.

The years 1990–2000 saw the arrival of almost 1 million immigrants, including close to 400,000 in 1990–1991 alone. The vast majority of these new immigrants arrived from countries in the former Soviet Union (FSU). From 1990 to 1995 – years of particularly high immigration rates – the Israeli population grew at an average annual rate of 3.5% per year, while from 1995 to 2000, the average annual growth was 2.5% and from 2000 to 2005, it was 2.3%.

The Israeli Economy

Throughout its history, armed conflicts with neighboring Arab countries and large-scale immigration have posed heavy burdens on the Israeli economy, creating the need for loans and extensive foreign support. Despite these challenges, Israel is a developed, industrialized country with a small, technologically advanced agricultural sector (less than 2% of the workforce), a growing service sector and a substantial high-tech sector. The 2005 GDP per capita income

(using purchasing power parities) was US\$ 26,054, similar to that of New Zealand, Spain and Italy, but well below that of wealthier countries such as Switzerland (US\$ 35,969) and the United States (US\$41,827). Israel's economy grew rapidly in the mid-to-late 1990s, but the growth slowed in 2000, due to the worldwide recession, the global downturn in the high-tech sector and the upsurge in the Israeli-Palestinian conflict. In recent years, the Israeli economy has returned to high rates of growth.

A total of 55.6% of the population aged 15 years and over were part of the civilian labor force in 2006 and the unemployment rate was 8.4% (CBS, 2007). Income inequality in Israel is among the highest in developed countries, although it is still lower than in the United States.

1.2 The System of Government

Israel is a democratic state with a multiparty parliamentary system. All citizens aged 18 years and over have the right to vote. The head of state is the president, whose duties are largely ceremonial. The state's legislative branch is the Knesset (Parliament), which has 120 members. Elections are held every four years by a system of proportional representation. A prime minister heads the executive branch. In 1992, Israel adopted a system of direct election of the prime minister, but this was abolished in 2001. At the time of writing (and prior to 1992), the prime minister is the head of the party (usually the largest party) chosen by the president to form a government.

There are many political parties, so all governments have been formed from coalitions. At no time in Knesset history has any one political party held an absolute majority. The cabinet (referred to in Israel as "the government") is appointed by the prime minister, but it must receive a collective vote of confidence from the Knesset. As a result, the cabinet usually comprises political leaders from a number of different parties. The judicial branch, headed by the Supreme Court, has the authority to supervise the country's entire legal system.

1.3 Historical Development of the Health System

Healthcare services in Israel have been developed over the past century by nonprofit health plans, as well as other nonprofit institutions, the government and the British Mandatory regime that existed prior to the establishment of the State of Israel in 1948. The health plans are called *kupot holim* in Hebrew (singular *kupat holim*) which translates literally as "sick funds," but they will be referred to as health plans in this document, as they are more similar to modern US HMOs than to the old-style European sick funds.

Workers' associations established the first health plan in 1911 to provide care to workers and their families and to employ immigrant doctors. This laid the groundwork for the health plan system, which remains a major component of the Israeli healthcare system. All four of Israel's health plans were formally established in the period between 1920 and the early 1940s; some of them emerged from mergers of health plans established even earlier.

Another important actor in the early years of the Israeli healthcare system was the Hadassah Medical Organization. Hadassah began its medical activities in Israel in 1913 by establishing the

Tipat Halav system (well-baby clinics, literally "drop of milk" centers), another key feature of Israel's healthcare system at the time of writing. In 1918, Hadassah began establishing hospitals in urban centers such as Jerusalem, Safed and Tiberias.

Government hospitals, which provide more than half of all acute beds in the country at the time of writing, along with most psychiatric facilities, consist primarily of hospitals established by the State of Israel in British Mandate hospitals and some are located in buildings abandoned by British Army camps, left over from the War of Independence in 1947–1948.

The nature and the achievement of the healthcare system in Israel stem, to a large extent, from its foundation in organized social arrangements, as well as a general consensus that society as a whole is responsible for the health of its citizens. This guiding principle has been reflected in the structure of health services in Israel, combining state activities with those of the nonprofit health plans.

Until the introduction of national health insurance (NHI) in 1995, the health plans both insured their members and provided them with most health services. By the late 1980s, approximately 95% of the population were insured in one of the four competing health plans, which provided their members with most curative health services either directly or through contracts with other agencies. Public health and individual preventive services were provided by the government, Hadassah and some of the larger municipalities.

The NHI Law ensures that all Israelis are covered by health insurance and spells out the list of benefits to which they are entitled. Coverage is provided via competing nonprofit health plans and there is full freedom of choice among plans. The system is financed primarily via progressive taxation and the government distributes these funds among the plans based on the size and age mix of their members.

Note that the introduction of NHI was not motivated by a widespread problem of lack of insurance. Rather, the main motivating factors were the need for greater clarity regarding the benefits to which individuals were entitled, the desire to reduce the politicization of the health system (including breaking the link between the Histadrut General Federation of Labor and the Clalit health plan), concerns about the growth of cream skimming, and a desire to improve the financial stability of the health insurance system.¹

1.4 Values Underlying the Israeli Healthcare System

The Israeli health system was founded on strong collectivist values; values that also characterized the reestablishment of a Jewish presence in the Land of Israel and its emblematic institutions such as the Israel Defense Forces and the kibbutz. The collectivist values were related to a strong egalitarian-socialist ethic as well as a perception that only by organized joint activity could a new state be created, defended and developed. There was also a sense that large nonprofit organizations, some of which were quasi-governmental in nature, could play a major role in

¹ For a more detailed analysis, see Rosen, B. and Bin-Nun, G. 2007.

nation building, which indeed they did. These approaches characterized Israeli healthcare in its formative years; practical expressions included the government's major role in the provision of hospital care, Clalit's willingness to accept all applicants irrespective of health or economic status,² and the similarity between the way that doctors and other healthcare workers were paid (monthly salaries that were moderate in size).

Over time, Israeli society and the economy as a whole have moved from their original socialist orientation to more of a mixed model, similar to many of the European social democracies. This shift has taken place in the Israeli healthcare system as well. Thus, there is greater reliance than in the past on market mechanisms (particularly with regard to the delivery of care), but still a strong consensus that government has an important role to play (primarily through financing and regulation) in ensuring that the health system is fair, accessible and working in the public interest. Both American and European models are influencing these developments.



2. HEALTH SYSTEM OVERVIEW – STRUCTURE, FINANCING AND EXPENDITURES

In Israel, there is universal insurance coverage, which is guaranteed by the 1995 National Health Insurance (NHI) Law. All permanent residents are free to choose from among the country's four, competing, nonprofit health plans. The health plans are required by the Law to provide their members with a package of benefits stipulated in the law in a timely and accessible manner. In return for this, the government gives the health plans a capitation payment that reflects the number of members in each plan and their age mix. The charts below indicate the 2008 market shares of the four plans, as well as the percentage of elderly in each plan.

The overall NHI system is financed primarily by income-linked taxation. However, approximately 40% of Israel's national health expenditures are covered by households, through a mix of out-of-pocket payments and supplemental insurance packages. Payments by households cover co-payments for certain services included in the NHI benefits package (such as visits to specialists and pharmaceuticals) as well as services not included in that package (such as dental and optometric care).

The Ministry of Health operates about half of Israel's acute care beds, another third are operated by the largest health plan (Clalit), and the remaining beds are operated by a mix of for-profit and nonprofit organizations. The hospitals are financed primarily via the sale of services to the health plans, and they do so through a complicated mix of reimbursement arrangements (see Rosen and Samuel, 2009, for further details).

² Other plans tended to be more selective.

The government plays an important role in regulating third party payers (particularly health plans), providers (particularly hospitals), the purchasing process (where hospitals and health plans interface), health professionals, the pharmaceutical industry and public health. These regulatory roles will be discussed in detail in the monograph on the role of government.

While both the Ministry of Health and the health plans operate through a set of regional and district offices, they are essentially nationwide organizations. This is consistent with Israel's relatively small size and its unitary, as opposed to federal, system of government. Within the health plans, there has been a gradual process of decentralization over the past two decades, but strategic decision-making and ultimate authority continue to reside at the national level.

The health system has a number of features designed to limit the size of the inpatient sector and the need for inpatient services. These include tight regulatory constraints on additions to the bed complement, the channeling of all NHI monies through the health plans (rather than carving out direct funding for hospitals), the widespread availability of high quality primary care, the development of community-based specialty services as alternative to hospital outpatient departments (OPDs), the development of community-based emergicenters as alternatives to hospital ERs, and rigorous utilization review of hospital services on the part of health plans.

Figure 1: Health Plan Market Shares, 2008

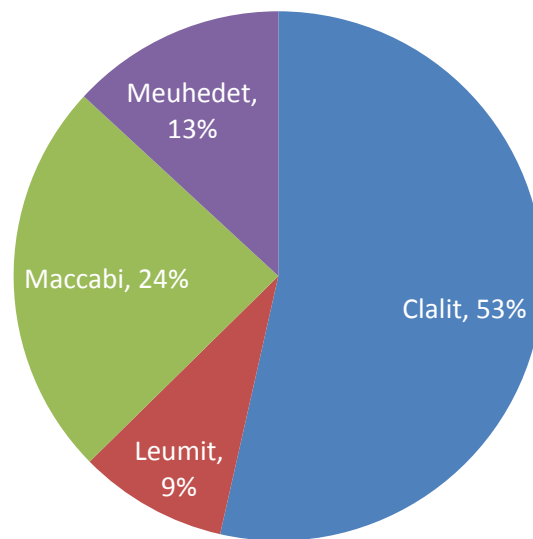
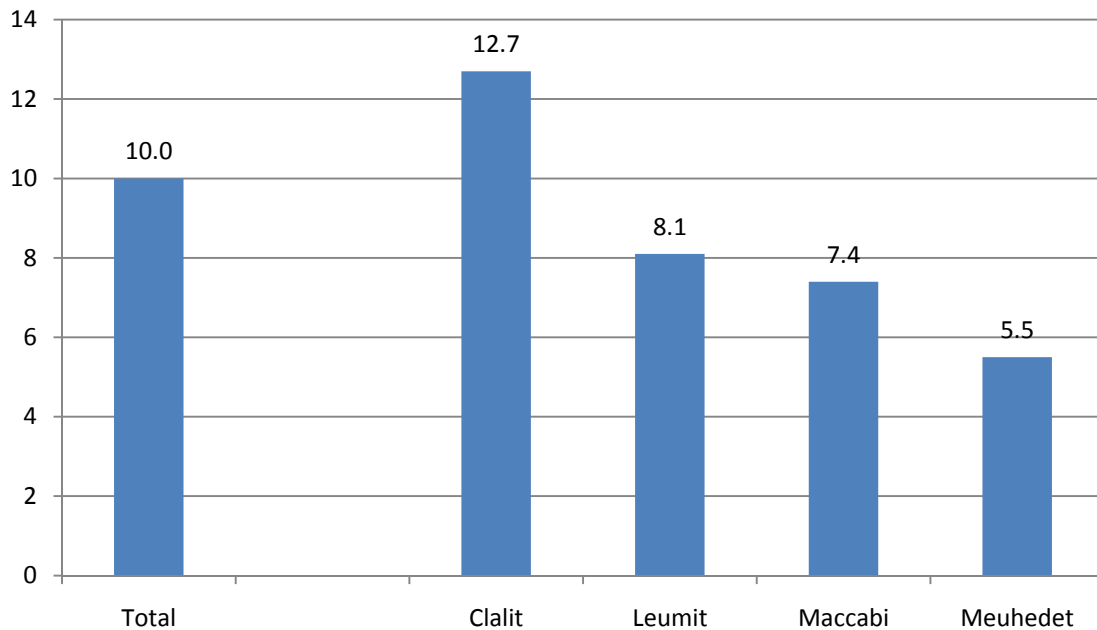


Figure 2: Percentage of Elderly among Health Plan Members, 2008



Source (both figures): Keidar and Horev. 2010.



3. WHAT IS INCLUDED IN THE BASIC BENEFITS PACKAGE?

The benefits package that the health plans are obligated to provide includes hospitalization, physician services, pharmaceuticals and many other types of healthcare services. It is considered a broad benefits package by international standards. Health plans are required to provide these services under conditions of reasonable accessibility and availability, and the individual's right to these services is an entitlement that is enforceable in court. Small co-payments are required for some services, most notably visits to specialists and pharmaceuticals.

Certain services continue to be the responsibility of the government, rather than that of the health plans, and their availability is conditional on the level of budgetary funding (as opposed to a legally enforceable entitlement). These include institutional long-term care, mental health care and preventive mother-and-child care. Since the introduction of NHI in 1995, there have been repeated attempts to transfer responsibility for these services to the health plans, but they have not succeeded. Opposition to these changes stems both from concerns about the level of services and concerns about a slippery slope of declining government commitment to healthcare (and indeed to education and other social services as well).

Most types of dental care remain outside the areas of responsibility of both the government and the health plans. Since December 2009, the Ministry of Health has been trying to secure funding to add dental care for children up to age 6 to the benefits package provided by the health plans.



4. HEALTH SYSTEM FINANCING AND EXPENDITURES

4.1 How is the Global Budget Set?

Each year the Government determines the level of funding for the NHI system, which is financed predominantly from public sources. The remainder comes from private sources, through cost sharing.

The starting point for government deliberations on the NHI system's funding level for the forthcoming year is the current year's funding level (determined by the government in the previous year). There is an automatic adjustment for changes in healthcare prices (determined by a formula). In addition, the NHI Law mandates annual adjustments to reflect demographic growth, aging, enhanced efficiency, and technological advances. However, the size of these adjustments is not determined by a formula; instead, they are determined through negotiations between the Ministries of Health and Finance, with the prime minister and other ministers/political parties sometimes getting involved.

Ultimately, the budget allocated to health in any given year will be influenced by both the size of the overall government budget and the share of that budget allocated to health. The former will be influenced by Israel's macroeconomic and security situation as well as the government's attitude toward deficit spending. The share of the budget allocated to healthcare will depend on the governmental leadership's perception of the needs in health vs. other areas of government activity and the priority it gives to addressing those competing needs.

4.2 What are the Main Sources of Financing?

Public NHI financing comes from two sources: the health tax and general tax revenue. The health tax is an earmarked payroll tax collected by the National Insurance Institute (NII). Individuals pay 3.1% on wages up to half of the average national wage and 4.8% on income beyond that level, to a ceiling of five times the annual wage. There are exemptions and discounts for various groups, such as pensioners and recipients of income maintenance allowances. Failure to pay the required health tax will result in government action to enforce payment, but in no way jeopardizes the individual's right to NHI benefits. Prior to the abolition of the employer tax in 1997, the proportion of public financing for healthcare that came from earmarked sources was substantially higher.

General tax revenue is used to fill the gap between the officially determined level of NHI funding and revenue from the health tax. The system therefore lies somewhere between a social health insurance system and a tax-financed system.

4.3 Expenditure

As indicated in Table 5, in 2005 Israel spent almost NIS 43 billion on healthcare, amounting to 7.8% of GDP. It is important to note that since the introduction of NHI in 1995, the share of health in GDP has been stable, in contrast to a rise in the preceding decade (CBS, 2008).

The proportion of Israel's GDP devoted to health, 7.8%, is slightly below the European (EU) average. Prior to 1994, Israel spent below the EU average on healthcare.

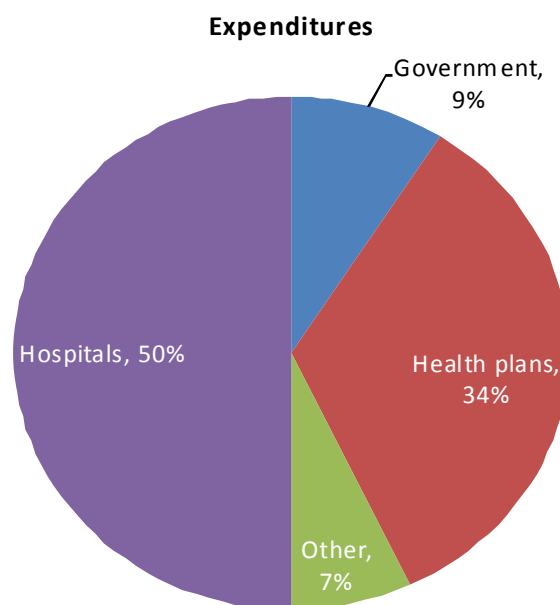
The level of healthcare expenditure in US\$ PPP amounts to US\$ PPP 1975 per capita in Israel, which is lower than the EU average due to the fact that Israel's GDP is relatively low.

The proportion of total expenditure on healthcare from government or public sources is only 70% in Israel, making it one of the lowest of the WHO European Region.

The most recent year for which there are data on expenditure (both public and private) by type of service is 2004. In that year, fixed capital formation accounted for 3% of national healthcare expenditure and current expenditure accounted for 97% (CBS, 2008).

Over time, the share of public clinics and preventive care has increased and the shares of hospitals and research have declined.

Figure 3: Healthcare Expenditures, 2004, by Operating Sector



Source: Keidar and Horev, 2010

The distribution of current expenditure by operating sector in 2004 was:

- ❖ Government and local authorities – 9%
- ❖ Health plans – 34%
- ❖ Other nonprofit institutions – 7%
- ❖ Market producers³ – 50%.

4.4 The Process for Prioritizing Resources

The NHI Law stipulates the benefits package that all permanent residents are entitled to receive from their health plans. In setting out the details of the initial benefits package in 1995, the Knesset essentially adopted that of Clalit, the largest health plan. The initial benefits package provided by the health plans under NHI included hospital care, community-based healthcare, pharmaceuticals and so on. All health plans are legally mandated to provide the same benefits package.

In 1997, Israel established a formal priority-setting process for the addition of new services to the benefits package. Each year, as part of the annual budgeting process, the government determines how much money will be available to fund new technologies. At the same time, the Ministry of Health solicits recommendations from the health plans, pharmaceutical companies, the Israel Medical Association (IMA), patient organizations and other groups for new technologies to be given priority for inclusion in the benefits package. After the Ministry of Health has carried out a cost-benefit analysis, a public committee – made up of health plan representatives, the Ministry of Health and the Ministry of Finance, the IMA, experts in health economics and health policy, ethics experts, and public figures from outside the healthcare system – recommends which new technologies should be adopted (Chinitz et al., 1998). Final decisions as to what will be included are made by the Minister of Health. The public committee's recommendations are not legally binding, but to date its recommendations have been fully adopted.

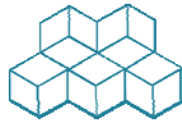
In the first few years of the priority-setting process, most additions to the benefits package were pharmaceuticals. Moreover, almost all of the funds went to life-extending (as opposed to life-enhancing) medications. Over the years, greater emphasis has been placed on life-enhancing medications and non-pharmaceutical innovations.

This explicit priority-setting process is considered by many health policy analysts, both in Israel and abroad, to be groundbreaking on an international scale⁴ (Chinitz et al., 1998). It certainly constitutes one of the most serious efforts in healthcare in Israel to base decisions on solid

³ This includes hospitals operated by the government, the health plans and other nonprofit entities; this reporting methodology at the CBS differs from those in force prior to 2003.

⁴ When I suggest that Israel is a pioneer, I am not referring to the analytic level; Israel relies heavily on comparative effectiveness research studies (CERs) and other analyses done elsewhere. Israel's innovations are more in terms of the organization and politics of the matter: setting an overall budget cap for new technologies, prioritizing, the diversity of groups represented on the key prioritization committee, etc.

information and a structured decision-making procedure. At the same time, various criticisms have been voiced about both the process and the substance of the committee's work.⁵



5. RESOURCE ALLOCATION: REIMBURSEMENT SYSTEMS

5.1 From Government to Health Plans

Almost all of the National Health Insurance monies are distributed by the government to the health plans on the basis of a capitation formula that takes into account the number of members in each plan and their age mix. A small portion of the funds is distributed among the plans on the basis of the number of members with each of five different rare, but very expensive, conditions. In addition, a certain amount of money is distributed based on the extent to which the plans meet fiscal responsibility and efficiency targets set by the government, where these targets are changed every few years. As the current formula does very little to adjust for differences in health risk within age categories, there continues to be a significant incentive for the health plans to cream skim.⁶

5.2 From Health Plans to Physicians

Primary care physicians are remunerated primarily on a salary and/or capitation arrangement basis; fee-for-service plays a very small role in their remuneration.

Some plans use "passive capitation" whereby the physician receives a capitation fee for all members on his/her list, irrespective of whether any visits took place. Others use an "active capitation" system, with payment reflecting the number of members who visited the physician at least once in the past quarter-year.

Community-based specialists working in clinics operated by the health plans (mostly Clalit) are paid primarily on a salary basis, reflecting the number of monthly sessions that they work. There are additional payments for certain procedures on a contractually agreed list.

Community-based specialists working out of their own offices tend to be paid through a mix of active capitation and fee-for-service for particular procedures.

5.3 From Health Plans to Hospitals

Two-thirds of admissions are covered by per-diem payments that do not distinguish between departments, treatments or diagnoses. Differential payments (DPs) cover about a third of

⁵ For a recounting of these criticisms, see Rosen and Samuel, 2009.

⁶ However, to date there are no studies to actually assess the extent and nature of cream-skimming practices.

inpatient admissions and these are paid on a per-admission rather than per-diem basis. The Israeli DPs were modelled on the US diagnosis related groups (DRGs). However, while the US DRGs include both diagnoses and procedures, the Israeli DPs include procedures only. The Israeli categories are also less detailed than the American ones, particularly with regard to co-morbidities and age factors. As a result, the US system has over 700 payment categories, compared to about 100 in the Israeli system.

Outpatient care is covered primarily by fee-for-service payments.

The actual rates for the Israeli DRGs and our outpatient price list are based on Israeli data. Often the calculations are based on data from only a limited number of hospitals, and this is recognized as problematic.

Government-determined hospital revenue caps limit the extent to which year-to-year increases in hospital volume are reflected in increased payments to the hospitals from the health plans. In addition, the health plans negotiate discounts with particular hospitals in return for a commitment to treat a certain volume of patients.

5.4 From Hospitals to Physicians

Most hospital physicians are paid on a salary basis that does not reflect the number of procedures they perform. The salary level is determined through a collective bargaining agreement, and primarily reflects the physician's years of experience and the extent of his/her clinical/administrative responsibility.

In addition, particularly sought-after physicians can earn additional funds in a variety of ways, some of which are related to the number of hours worked beyond the usual workday, and others are tied to the number and type of procedures carried out "after-hours" in public hospitals or in private settings.



6. RESOURCE USE RATES

6.1 Beds

In 2005, Israel had 46 general (acute) hospitals, 15 psychiatric hospitals and 309 chronic disease hospitals (analogous to US skilled nursing facilities), (see Table 1). This section focuses on general hospitals; key statistical data are presented in Tables 2 and 3.

Israel's 46 acute hospitals are spread throughout the country. The overall general care bed-to-population ratio, as of 2007, was 2.1 per 1000 population. As in other countries, the bed-to-population ratio is higher in the center of the country than in the periphery, ranging from 1.5 in

the southern region to 2.7 in the Haifa region. Still, the vast majority of the population lives within an hour's drive of a hospital. All the hospitals tend to have up-to-date medical equipment and provide specialty services. There is more variation with regard to the physical buildings themselves, although several major modernization efforts have been undertaken in recent years.

Compared to OECD countries, Israel is characterized by a low bed-to-population ratio, an extremely low average length of stay, a mid-to-high rate of admissions per 1000 population and a high occupancy rate. The low bed-to-population ratio is the result of deliberate government policy based on the view that resources should be focused on community care and on the assumption that the greater the number of beds, the larger the hospital's share of total health resources.

The Ministry of Health has gone through an extensive planning process to assess the need for additional beds. It has determined that there is a serious need for expansion, particularly in peripheral regions. A national bed expansion plan has been developed and approved by the Ministry of Health. However, the plan has not been implemented, as the required funds have not been allocated by the Ministry of Finance.

No major new hospital has been created in Israel for many years. However, recently there has been serious talk of opening two new hospitals (in Ashdod and the Haifa suburbs).

As indicated in Table 2, in recent decades the average length of stay has declined dramatically, from 6.8 days in 1980 to 4.2 days in 2005, most of the decline taking place prior to 1995, followed by stability since 1997. Similarly, the admission rate increased dramatically from its 1980 level of 145 per 1000 population to 177 per 1000 in 1995, and stabilized thereafter, with a level of 173 per 1000 in 2005. The number of hospital beds per 1000 population continues to decline and in 2005, it was below 2.1 per 1000. As the decline in average length of stay has been greater in percentage terms than the increase in admission rates, the rate of patient days per 1000 population has declined somewhat. The volume of day care and ambulatory surgery has increased dramatically since the mid-1990s.

Since the intifada in September 2000,⁷ hospitals have had to mobilize to care for the casualties, including victims of shock, which requires an increase in both medical and psychiatric services. Given that other threats to the population persist, hospitals continue to be prepared for any potential emergency. In general, there are no special government grants for emergency preparedness, and the ongoing costs of preparedness are taken into account when establishing the per diem rate. Government has provided funding for major capital investments such as the building of underground capacity. In addition, it has post facto provided the most impacted

⁷The Second Intifada, also known as the al-Aqsa Intifada is the second Palestinian uprising, a period of intensified Palestinian-Israeli violence, which began in September 2000. The death toll to date, including both military and civilian, is estimated to be over 5,300 Palestinians and over 1,000 Israelis and includes 64 foreign citizens.

hospitals with special funds to cover some of the costs incurred during wars (such as special allocations given to hospitals in the north for costs incurred during the 2006 Second Lebanon War).

As indicated in Table 3, almost half of all acute hospital beds (46%) in Israel are located in hospitals owned and operated by the government. Another 30% of the acute beds can be found in hospitals owned and operated by Clalit. Approximately 4% of acute beds are located in private for-profit hospitals and the remaining acute beds are in church-affiliated and other voluntary, nonprofit hospitals (such as Hadassah Medical Center). Virtually all hospital physicians are directly employed by the hospitals, the exception being the private for-profit hospitals, in which most physicians work as independent practitioners with admitting privileges. Interestingly, one of the private hospitals (Assuta) is owned by Maccabi Healthcare Services as a profit-making subsidiary, and another (Herzliya Medical Center) is partly owned by Clalit Health Services.

While Israel does have a few small, "single specialty" hospitals, particularly in the maternity field, the vast majority of the country's hospital beds are located in general hospitals. Almost all Israeli hospitals have university affiliations and operate training programs for medical students, interns and residents. The range and depth of these university affiliations varies. Of Israel's 47 general hospitals, 6 have been recognized as supra-regional hospitals and they tend to have the greatest concentration of research and training activities, as well as centers for complicated and expensive treatments.

Private for-profit hospitals account for 3% of acute care beds, but about 9% of discharges; they tend to focus on short-stay but high-margin elective surgical procedures. The number of beds in private hospitals has been fairly stable until now, but the leading private hospitals are in the midst of a serious modernization and upgrading of their facilities at the time of writing, including an expansion in the range and number of operations they are able to perform. In these private hospitals, care is covered via a mix of out-of-pocket payments, commercial insurance and supplemental insurance. Patients are able to exercise a great deal of choice with regard to the surgeon, the anesthesiologist and, where applicable, the medical equipment to be used (such as the grade of implant to be used). The upgrading of these facilities has aroused concerns in the public hospitals that they will lose both staff and patients.

6.2 Physicians

Trends in the Physician-to-Population Ratio

The physician-to-population ratio has been relatively stable since the early 1990s, with an increase from 3.6 to 3.75 per 1000 between 1992 and 1997, followed by a gradual decline to 3.5 per 1000 in 2006. This is in contrast to major changes that took place in this ratio during the previous decades and the changes projected for the years ahead.

In 1970, Israel had 2.0 physicians per 1000 population. During the 1970s, this ratio increased gradually, in large part due to the immigration of many physicians from the Soviet Union and Eastern Europe. By the early 1980s, this ratio had passed the 3.0 mark, where it remained stable until the massive immigration from the FSU that began in late 1989. Between 1989 and 1994, over

half a million people immigrated from the FSU to Israel and the ratio jumped from 3.1 to 3.6 per 1000. There was an extraordinarily high percentage of physicians among these immigrants (over 2.0%, compared with 0.3% for the Israeli population prior to the immigration wave). In the years 1990–1994, Israel granted licenses to approximately 7,650 physicians, of whom 1,250 (16%) were educated in Israeli medical schools; 5,450 (71%) in medical schools in the FSU; and 950 (12%) in medical schools in other countries.

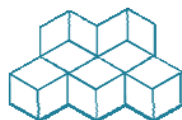
As of 2006, 37% of all licensed physicians up to the age of 65 had trained in an Israeli medical school. In contrast, Israeli-trained physicians constituted approximately half of the newly licensed physicians for the year 2006 (see Table 4).

Israel in International Perspective

At the time of writing, Israel has one of the highest physician-to-population ratios in the world; it is approximately 20% higher than the OECD average. However, while the ratio has declined somewhat in Israel in recent years, it has continued to increase in most OECD countries.

Inter-Regional Variation in Israel

There is substantial variation in the physician-to-population ratio across regions; it ranges from 1.7 per 1000 in the north of the country to 4.2 per 1000 in Jerusalem.⁸



7. QUALITY MONITORING

This section presents an overview of quality monitoring in Israel, focusing first on hospitals and other facilities and then on care in the community. Overall, it can be said that the quality measurement effort in Israel is much further ahead on the outpatient side than the inpatient side. Reasons for this include: better information systems on the outpatient side, and the greater leverage that health plans have over clinic managers in comparison with the more limited leverage that hospital directors have over department heads.

7.1 Monitoring Quality of Care in Hospitals and Other Facilities

In this section we consider quality monitoring and quality assurance activities of the Ministry of Health, with special attention to its Quality Assurance Unit and its Department of Health Services Research. We also report on the growing role of Joint Commission International (JCI) in Israel.

The Ministry of Health licenses and monitors the quality of Israel's hospitals, outpatient surgery centers, dialysis centers, clinical labs and other key healthcare facilities.

⁸ For a fuller analysis of inter-regional differences in service supply and utilization, see pp. 198-203 of the Israel Health System Review (Rosen and Samuel, 2009)

The licenses granted to hospitals are valid for 1–3 years, depending on the results of the latest inspection. The licenses are very detailed. They refer to a specific number of beds, by department, as well as specifying the types of outpatient clinics the hospital is authorized to operate.

In the early 2000s, the Ministry of Health's Quality Assurance Unit began a system of quality inspections of hospitals and other healthcare facilities (irrespective of whether the facility is run by the Ministry or another provider). The inspections are carried out annually and, in the case of hospitals, involve a large multidisciplinary team of up to 25 inspectors. The inspections include detailed reviews of a sample of records. Hospitals are forewarned so that they can prepare for the inspections. During this period, three facilities have been closed due to severe and persistent quality problems; many others have been cited as having serious deficiencies that have subsequently been addressed. The Ministry has begun to carry out inspections of the health plans' operations on a district-by-district basis, even though health plans operate under the auspices of the NHI Law, and as such are not licensed by the Ministry of Health.

The Ministry of Health's Department of Health Services Research develops quality-monitoring tools with an emphasis on outcomes. Major in-depth studies have been carried out regarding such topics as hospital-acquired infections, coronary bypass operations, ICU care and transplants.

Another Ministry of Health project focuses on antibiotic-resistant infections.

Several Clalit hospitals have been accredited by JCI and the Ministry of Health is exploring the possibility of working with JCI on the accreditation of the hospitals that it operates.

For several years, Clalit had a quality-monitoring system in its hospitals, but did not produce significant improvements. The organization is now revamping it – fewer measures, only those that are evidence based, more involvement of the hospital physicians in choosing the measures, etc. Similar efforts are underway within the Ministry of Health to develop a broad set of quality measures for the government hospitals.

Israel's National Blood Bank is operated by the national ambulance service (MDA) and adheres to the highest international safety standards.

Israel does not have a formal national procedure for identifying and reporting medical errors, aside from those that result in deaths in hospitals or other very severe outcomes.⁹ However, patients – with the assistance of the media and personal injury lawyers – identify and publicize many such cases each year, and the Ministry of Health does follow up on those cases.

7.2 Monitoring Quality of Care in the Community

The National Quality Measures Program is a fine example of how research findings translate into policy decisions and action plans. The program began as a research project initiated by a team

⁹ Maccabi does have a good system for identifying and analyzing patterns of errors.

of researchers from Ben-Gurion University, in cooperation with all four health plans and funded by the National Institute for Health Policy Research (NIHP). During the research stage, a unified standardized measures system was developed, mainly for primary care. This enabled a reliable and ongoing assessment of the quality of care in the community to be established, in accordance with national and international goals. In 2004 the project was adopted by the Ministry of Health and elevated to an operational national program run by the initiating team, with the sponsorship of the NIHP.

The program allows routine and dynamic quality assessment of the preventive, diagnostic, therapeutic and rehabilitative services supplied by the health plans. To date, 69 indicators have been developed in six principal medical fields and are regularly measured in the total Israeli population of over 7 million.

This ongoing scientific infrastructure helps with national prioritizing during the policy-making process and induces quality improvement. The information is also available to the general public, inviting them to assess the quality of services in Israel and access them in an informed and responsible way.

The 2008 report of the National Quality Measures Program (Porath et al., 2008) indicates that in the wake of the project's implementation, there have been significant improvements in many of the measures being monitored, including those related to diabetes, cardiovascular disease, asthma, cancer screening, child health, and flu and pneumococcal vaccinations. Moreover, Israel's performance in terms of most of these measures appears to be good in comparison with that of other countries. Clearly, the health plans have taken the information generated by the project very seriously, and have introduced a variety of administrative and clinical changes that have produced the quality improvements.

At the same time, the project has identified numerous areas in need of improvement. These include the lag time in the availability of key outcome data (such as disease-specific mortality rates), and problems in accessing hospital discharge diagnoses (which are very important for building various registries).

One of the most impressive aspects of the project has been its ability to build and sustain cooperation among the four competing health plans, which need to agree on what areas of healthcare should be monitored and how performance in these areas should be defined and measured. They also need to adjust their data systems accordingly and submit their performance data to the central project team. There are anecdotal reports that the health plans have been sharing with one another various strategies, regarding not only how to measure, but also how to improve, performance. Cooperation has been built up and sustained through a variety of measures, including: involving health plan leaders in the design of the project from the very first stage; basing all major project decisions on consensus; and maintaining high scientific standards with regard to the choice of measures implemented and the data collection itself.

The project team publishes an annual report with its key findings. At the time of writing, the findings are published by age group and gender, as well as by a proxy for socioeconomic status.

Within the next few years, the data are due to be published by region as well, once a methodology has been put in place to control for inter-regional differences in key sociodemographic characteristics. There continue to be differences of opinion on whether, and when, the data should be published by health plan. The arguments against publishing performance results by health plan include concerns that doing so will disrupt the cooperation that has formed the basis of the project and is one of its greatest achievements. The arguments in favor include the concept that doing so will enable consumers to make more informed choices among health plans and that the resultant market forces will spur the health plans to invest even greater efforts to improve performance.



8. HEALTH IT

This section provides an overview of health information technology (IT) in Israel and considers the following: the societal-technological context, community-based systems (including the basic electronic medical record, electronic prescribing, telemedicine and web-based consumer access to health information), and hospital-based systems. We also touch on what Israel is doing to surmount the challenges of connectivity and interoperability.

8.1 The Societal-Technological Context

The general context in which IT systems operate within a country, particularly the level of access to the Internet, will influence how IT can be used within a health system. In Israel, two-thirds of adults use the Internet, and approximately half of all adults use it on a daily or almost daily basis. Approximately half of the Internet users used it for health-related purposes at least once in the course of 2007. Approximately a quarter of users used medical forums to seek health advice and 10% of users even posted a medical question in such a forum.¹⁰

Israel is considered a world leader in healthcare IT implementation. Generally speaking, the IT penetration level in primary and secondary care institutions is very high. Most clinical and administrative interactions are computerized; in addition to contributing to patient care at the individual level, the use of business intelligence (BI) systems makes it possible to analyze these data statistically at the local, regional and national levels to monitor patterns of care and identify ways to improve them.

8.2 Community-Based Systems

In Israel, electronic medical records (EMRs) and practice management systems (PMSs) are implemented in more than 95% of primary care clinics and other community-based physician

¹⁰ Data that appear in this section were taken from a national survey of Israeli adults carried out by Clalit Health Services in January 2008.

clinics. Some of the health plans (accounting for 60% of the population) use centralized databases to store most of the patient-level data, while others keep the data primarily at the provider level, with centralized databases being used only for back-up purposes.

All the health plans operate extensive websites, through which the general public can learn about the types of services they offer, as well as accessing the contact information for specific practitioners, while members can also easily access test results, and in some cases schedule appointments. The health plans also operate call centers through which members/patients can obtain 24-hour guidance (usually from specially trained nurses) on how to respond to various illnesses and symptoms.

Some of the interesting developments within particular health plans are discussed here.

- ❖ Clalit Health Services uses an innovative health information exchange (HIE) system (*Ofeq*) for aggregating clinical patient data from various sites, enabling secure authorization-based sharing of clinical data among caregivers. In particular, the system facilitates the flow of information between hospital-based providers and providers based in the community. Thus, primary care physicians can be alerted when their patients have been hospitalized, can find out what treatments have been provided in hospitals and can better prepare for their patients' post-hospital care. Hospital-based physicians can benefit from information on laboratory and diagnostic tests carried out in the community as well as information from community-based providers regarding co-morbidities and sensitivities.
- ❖ Maccabi uses a fully centralized computerized medical record. The entire medical record is held within the central database and the doctors (and other health professionals) are connected to it by a server. The independent doctors have a back-up version for their own personal records on their personal computers, but the actual EMR is one central record and everything that anyone adds appears there (in real time) and can be accessed by authorized individuals. This of course raises the issue of privacy and, consequently, Maccabi patients have the right to opt out of or limit access to their medical record.
- ❖ Maccabi also offers its members a "personal health record" on the web (Maccabi Online), enabling the patient to add and store information in her/his own personal EMR. It is also pioneering biometric identification at the point of service (doctor's offices, laboratories and so on), which has been successfully piloted and is now being gradually implemented across the country. This system will ultimately supplant the magnetic card system in use at the time of writing.

Since 2005, the major strategic healthcare IT objective at the national level has been the creation of a national medical health record that contains essential health information on each and every citizen. Progress has been slow, due to a variety of technological, medico-legal, ethical and political barriers.

The next significant developmental stage of healthcare IT will be the use of the Internet platform for healthcare-related services (as opposed to the current stage, in which the Internet is used

mainly as a health information source). Patients will be able to initiate end-to-end healthcare-related interaction cycles, both clinical (such as e-prescriptions and e-visits) and administrative (such as billing), through a secure, personal health account.

Some interesting developments are already taking place within particular health plans:

- ❖ In Maccabi and Clalit, all prescriptions are sent directly, and electronically, to pharmacies;
- ❖ In all the plans, patients can use the Internet to obtain their lab results and set up certain types of appointments.

The development of new healthcare IT applications involves the collaboration of business and IT units. Often, the management team of a business unit will map the field's needs and translate the results into requirements documents (that is, formal, detailed descriptions of the needs). These documents are then delivered to IT personnel who serve as the internal operating contractors. The IT department is typically responsible for the mapping of potential technological solutions (request for information/proposal stages; RFI and RFP, respectively). The decision on the preferred solution is usually made jointly by business and IT representatives and takes into account business, technological and financial considerations.

Appointment booking for primary care clinics (as well as most inpatient facilities) has been, for several years now, a completely digitalized process. Furthermore, since 2006, patients have been able to book an appointment to visit primary and secondary ambulatory clinics through a secured web interface.

Israel is also an international leader in telemedicine. For example, Maccabi makes extensive use of tele-radiology, tele-ultrasound, tele-electrocardiogram (ECG) and tele-holter, all of which have images/graphs transmitted digitally to a single hub, where highly qualified specialists and sub-specialists carry out the interpretation. The interpretation is then transmitted back to the referring physician, as well as being archived so that other physicians with authorized access can see both the image and the interpretation. The interpretation is also made available to the patient on the patient portal, along with lab results, and so on. There have recently been two new additions to this tele-family: tele-ophthalmology and tele-consultation.

Many of Israel's innovations in the Health IT area reflect cooperation between Israel's large governmental and non-profit providers (both hospitals and health plans) and Israel's vibrant entrepreneurial high tech sector.

8.3 Hospital-Based Systems

NAMER is the largest hospital administration information systems project in Israel. It provides ATD (admissions/transfers/discharge), billing, ward management, patient acceptance and discharge capabilities to the Ministry of Health's general hospitals. In addition, it is tied into picture archiving and communication systems (PACS), operating rooms, laboratory and local hospitals/CPR (computerized patient records) and has a module for multi-casualty incidents. A great deal of progress has also been made in terms of clinical automation in hospitals. Computerized physician

order entry and clinical support systems have been implemented in several of the large hospitals in Israel.

The Israeli Center for Medical Simulation (MSR), located in Sheba Medical Center, is a world leader in simulation-based medical education and patient safety.

With the exception of the MSR, most of the features of inpatient health IT in Israel can be found in most US hospitals as well.



9. HEALTH OUTCOMES¹¹

In 2006, life expectancy at birth was 78.5 for males and 82.2 for females (CBS, 2007). Life expectancy for Israeli males is among the highest in OECD countries and that for women is in the lower range. From 1986 to 2006, life expectancy increased by 5.3 years for males and by 5.4 years for females. The most recent data on health-adjusted life expectancy (HALE) at birth are for 2003, with 70.0 for males and 72.0 for females (WHO, 2008).

In 2006 the infant mortality rate was 3.9 per 1000 live births (CBS, 2007); it has declined by 38% since 1996. The infant mortality rate of the Arab population has shown an even more rapid decline than that of the Jewish population, but still remains approximately double that of the latter, reflecting the influence of high rates of consanguineous marriages and various socioeconomic factors. The main causes of infant mortality are prematurity in the Jewish-Israeli population and congenital anomalies in the Arab-Israeli population (Ministry of Health, 2006). The rate of under-5 mortality in 2005 was 5.5 per 1000 live births (Ministry of Health, 2005).

The crude mortality rate in 2006 was 5.5 per 1000 population, down from 6.1 per 1000 population in 1999. The leading causes of death were malignant neoplasms, heart disease, cerebrovascular diseases, diabetes and accidents, accounting for close to two-thirds of all deaths in 2004 (CBS, 2004). Mortality from stroke and coronary heart disease has been declining steadily since the mid-1970s. The decline is attributed to improved treatment (medication and surgical intervention) and to greater awareness and prevention and has been generally more marked in the Jewish-Israeli population than among Arab Israelis. Notwithstanding this decline, heart disease remains a major health problem in Israel, among both men and women.

Interestingly, while the crude death rates for both men and women (over age 20) have declined in recent decades, the decline has been greater for men, so that now the crude death rates for the two genders are very similar. With regard to the crude death rate for the under-65

¹¹ This section is based on data collated by the Israel Center for Disease Control (ICDC) and was prepared by Annekeh Ifrah.

population, the male rate remains higher than the female rate, although here, too, the gap has narrowed over time.

Among women, breast cancer is the leading cancer, accounting for approximately 30% of all cancer morbidity and 20% of cancer mortality. Among men, the leading cancers are prostate cancer (in Jewish men) and lung cancer (in Arab men). The cancer with the highest mortality rate is lung cancer (for both Jewish and Arab men) (Ministry of Health, 2008c).

Data on the incidence of cancer are drawn from the National Cancer Registry, while other morbidity data are generally self-reported, based on large population surveys, such as the National Health Survey (CBS 2006), and the Israel National Health Interview Survey (INHIS) (ICDC, 2006). In addition, national registries for coronary heart disease and stroke have been established, including the Acute Coronary Syndromes in Israel Survey (ACSIS) in 2000, 2002, 2004, 2006 (ACSIS, 2006) and the National Acute Stroke Israeli Survey (NASIS) in 2004 and 2007 (NASIS 2007).

Among the Arab-Israeli population, the leading causes of morbidity and mortality are heart disease, cancer, stroke and diabetes. Risk factors for cardiovascular disease, such as obesity, diabetes and physical inactivity, are particularly prevalent among Arab women aged over 45 years. Lung cancer, which is the leading cancer among Arab men, carries a 50% higher mortality rate among Arab men than among Jewish men; this has been linked to the higher rates of smoking among Arab men (approximately 40%) than Jewish men (approximately 27%) (ICDC, 2008b).

With regard to lifestyle factors, alcohol consumption is appreciably lower in Israel than in European countries, while rates of cigarette smoking are similar in men and slightly lower in women (WHO Regional Office for Europe, 2007). Rates of smoking have shown a decline since the mid-1990s; in the year 2006, approximately 23% of the population aged 18 years and above reported that they were smokers (as compared with approximately 27% in 2000). The prevalence of cigarette smoking has also declined somewhat in teenagers; however, in 18-year-old army inductees, both men and women, there has been no decline in smoking rates since the mid-1990s (ICDC, 2008a).



Table 1: Number of Beds in Acute Care Hospitals, Psychiatric Hospitals and Long-Term Institutions, 1980–2005

	Acute Care	Mental Health	Long-Term Care	Total
1980	11,580	8,556	5,595	25,731
1985	11,908	7,941	7,193	27,042
1990	12,205	7,123	9,264	28,592
1995	13,105	6,789	12,682	32,576
2000	14,165	5,619	18,210	37,994
2005	14,607	5,352	21,754	41,713

Source: Ministry of Health, 2007

Table 2: Hospital Data, 1980–2005

	1980	1985	1990	1995	2000	2005
Acute beds per 1000 population	2.95	2.83	2.53	2.33	2.23	2.09
Latest data for:						
– Discharges/1000	145	148	157	177	175	173
– Days/1000	991	911	833	818	764	730
– Average length of stay (days)	6.8	6.1	5.3	4.5	4.3	4.2
– Occupancy rate (%)	90	90	88	95	93	96

Source: Department of Health Information (Ministry of Health), 2006

Table 3: Acute Care Beds in General Hospitals, by Ownership, 2007

	Hospitals	Beds	Discharges (Thousands)	Days (Thousands)	Occupancy	Length of Stay
Total	46	14,582	1,244	5,066	95%	4.1
Government	11	6,774	533	2,425	98%	4.5
Health plans	9	4,438	363	1,476	91%	4.1
Nonprofit	15	2,881	236	985	94%	4.2
For-profit	11	489	112	180	101%	1.6

Source: Haklai, 2008

Table 4: Newly Licensed Physicians, by Location of Medical Studies

	Number		Percent	
	2008	2003	2008	2003
Total	606	734	100%	100%
By location of medical studies				
Israel	310	282	51%	38%
Eastern Europe	182	340	30%	46%
Western Europe	57	40	9%	5%
Americas	30	57	5%	8%
Asia/Africa	26	12	4%	2%

Source Haklai, 2010

Table 5: Trends in Total Expenditure on Healthcare in Israel, 1990–2005

	1990	1995	2000	2005
Value in 2000 prices (NIS billion)	24.98	32.38	39.42	42.86
Share of GDP	7.3	7.9	8.0	7.8
Public share in total expenditure (%)	71	74	71	68
Private share in total expenditure (%)	29	26	29	32
	1990–1995	1995–2000	2000–2005	
Mean annual real growth in total health expenditure (%)	6.3	4.2	1.2	
Mean annual real growth in GDP (%)	8.1	5.7	2.0	
Total government spending ¹ as a % of GDP	3	4.28	27	
Government health spending as a % of total government spending ¹	10	20	20	
Government health spending as a % of GDP	4	6	5	
Government health spending as a % of total health spending	49	75	69	
Out-of-pocket payments as a % of total expenditure on health ²	27	26	29	

Source: CBS, 2008

Notes: ¹ General government consumption expenditure

² Payments for goods (including medicines) and services



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