

Health in Israel 1



Health and health care in Israel: an introduction

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Starting well before Independence in 1948, and over the ensuing six decades, Israel has built a robust, relatively efficient public system of health care, resulting in good health statistics throughout the life course. Because of the initiative of people living under the British Mandate for Palestine (1922–48), the development of many of today's health services predated the state's establishment by several decades. An extensive array of high-quality services and technologies is available to all residents, largely free at point of service, via the promulgation of the 1994 National Health Insurance Law. In addition to a strong medical academic culture, well equipped (albeit crowded) hospitals, and a robust primary-care infrastructure, the country has also developed some model national projects such as a programme for community quality indicators, an annual update of the national basket of services, and a strong system of research and education. Challenges include increasing privatisation of what was once largely a public system, and the underfunding in various sectors resulting in, among other challenges, relatively few acute hospital beds. Despite substantial organisational and financial investment, disparities persist based on ethnic origin or religion, other socioeconomic factors, and, regardless of the country's small size, a geographic maldistribution of resources. The Ministry of Health continues to be involved in the ownership and administration of many general hospitals and the direct payment for some health services (eg, geriatric institutional care), activities that distract it from its main task of planning for and supervising the whole health structure. Although the health-care system itself is very well integrated in relation to the country's two main ethnic groups (Israeli Arabs and Israeli Jews), we think that health in its widest sense might help provide a bridge to peace and reconciliation between the country and its neighbours.

In the beginning

We believe the history and organisation of health care in Israel offers a remarkable story. Following independence in 1948, in just a few decades Israel evolved from a developing country to one with increasingly good health statistics. In this review, we provide a short historical background for this Series on health in Israel, in addition to a brief description of the Israeli health-care system and some of its notable successes. Finally, we outline a selection of challenges to be overcome.

Situated at the eastern end of the Mediterranean Sea, Israel is a small country; in the world it is 152nd in size, comprising 22 072 km² (including East Jerusalem and the Golan Heights, but not the Gaza Strip or West Bank).¹ Israel is bordered on the west by the Mediterranean Sea, the north by Lebanon, the northeast by Syria, the east by Jordan, and the southwest by Egypt.

Israel's health-care system has been comprehensively described in a publication by Rosen and colleagues in 2015,² which offers an excellent resource to understand the relevant issues addressed in this Series. The region's history is complex. The immediate surrounding area is periodically convulsed by war, terrorism, and political instability—the catastrophe in Syria being the most recent example. These issues have been adequately and extensively covered elsewhere.³ As such, this Series will not comprehensively address historical or political issues, except when directly pertaining to health.

For the purpose of this Series, we consider the Israeli health-care system as defined by coverage through the 1995 National Health Insurance Law (NHIL), which provides health care to Israeli Arabs and Israeli Jews.

Key messages

- The Ministry of Health should divest itself from providing direct services (eg, ownership of hospitals and separate administration of geriatric institutional care) to concentrate on long-term planning for, and supervision of, the health-care system.
- While enjoying a situation with relatively low health expenditures in the face of excellent health indices, some services are seriously underfunded, such as the number of acute hospital beds, leaving little reserve for a mass casualty event such as an earthquake, war, or serious epidemic. These national priorities should be addressed urgently via a relevant increase in funding.
- Israel's leading position in academic medicine must be maintained via, among other steps, ensuring that it maintains recognition by relevant international accrediting bodies.
- In contrast with other fields, the health-care system in Israel recognises no ethnic or religious boundaries, with admirable cooperation between Israeli Arabs and Israeli Jews nationally. Consideration should be given as to how this laudable state of affairs might be extended to other spheres (eg, education, municipal planning, and civil society).
- While situated in the Middle East, Israel is, for various reasons, still relatively isolated from its neighbours. Health and health care can be used to expand regional understanding and political cooperation in the region of the Middle East.

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Under the responsibility of the Palestinian Authority in the West Bank and the Gaza Strip since the signing of the Oslo Accords in the 1990s, Palestinian health has been well covered previously, and thus is not within our purview.⁴

A short history of health and health care

Until the second half of the 19th century, no formal health services existed in the area, which at the time was merely a small, underdeveloped province of the Ottoman Empire. The first institutions, operated and funded mainly by Christian missions and Jewish non-profit charities, were founded primarily in Jerusalem and Nazareth in the 1880s, mainly for the benefit of foreign pilgrims and as political bridgeheads for sponsoring countries. The first so-called modern hospitals were founded by Jewish philanthropists, starting in Jerusalem in 1857, and later in other cities, and some of these hospitals (eg, Bikur Cholim and Shaare Zedek) are still functioning.^{2,5}

Events at the start of the 20th century had a profound effect on the development and nature of the health-care system. World War 1 ended with the British capture of the region from the Ottoman Empire. The era was marked by substantial immigration of European Jews and massive aid for health, both financial and professional, bestowed primarily, but not exclusively, by American Jewish philanthropy in the form of the Hadassah Medical Organisation.⁵

In 1911, the Agricultural Labourers' Union founded the Israeli system of not-for-profit health plans. Named and operated after the Bismarckian model, the General Sick Fund (now known as Clalit Health Services, which is the largest of Israel's four health plans) offered egalitarian health services to its members on the basis of graduated monthly payments.⁶ At first, the General Sick Fund built a network of primary-care clinics within most of the Jewish villages. Other communities followed by the development of secondary services and hospitals, which cooperated with those of Hadassah Medical Organisation to become the main providers of health care, with municipal, private, and non-governmental organisations playing a secondary role.

During the League of Nations Mandate for Palestine (1922–48), the British were responsible for all government services, and public hospitals began to operate under the auspices of the Mandatory Department of Health. However, at the time, the Jewish community also worked semiautonomously to develop its own health services. For example, Hadassah Medical Organisation established a second health plan (Amamit, now known as Meuhedet Health Services) and a national network of mother and child clinics called Tipat Halav (Hebrew for a drop of milk), dedicated to promoting health services, education, and preventive medicine, as well as a network of school health services. Midwifery, vaccination, and monitoring of child health and development from conception to age 3 years were provided free of charge. The distribution of

the clinics was country-wide and open to Israeli Jews and Israeli Arabs.⁵

In the 1930s, Jewish refugees fleeing persecution in Nazi Germany, including many immigrant doctors, arrived. Their contribution to the nascent medical system, both pre-state and after independence was prominent.⁷ These émigrés worked to establish two additional public health funds, which, like the General Sick Fund, provided health services on an egalitarian basis, funded primarily by monthly, graduated premiums. It was these Jewish refugees, forced to flee the anti-Semitic motives and genocidal practices of the Nazis, who contributed to the development of pre-state Israel, not just in the domain of health, but in higher education, commerce, law, and the arts.

When the State of Israel was established in 1948, a relatively well developed health-care system already existed, which operated on the basis of a network of public hospitals and not-for-profit health providers. At that time there was only a small role for the private sector. However, in the early years, a subsequently large influx of Jewish refugees, from post-war Europe (approximately 300 000 Holocaust survivors) and more than 700 000 Jews fleeing the surrounding Arab countries, put an enormous strain on the new State's health services, especially in the early 1950s. Recurrent waves of immigration have characterised Israeli history, with the health-care system being repeatedly buffeted by resultant, sudden, unexpected surges in demand.

In 1948, immediately after independence, the previously British-run institutions were converted into Israeli Government hospitals under the management of the new Ministry of Health. The mother and child clinics and school health services were also transferred to state responsibility. To this day, together with the four health plans, this pre-State infrastructure continues to constitute the overarching framework for public health services in Israel.

After the Six-Day War, in 1967 until 1994, Israel gained responsibility for the health of Palestinian residents of the Gaza Strip and the West Bank. Initially the focus was on communicable disease control, a strong vaccination policy, development of primary health care, a community health worker project, nutrition, and continuing education for physicians, nurses, and public health.

A major immunisation programme, implemented jointly by Israel's Ministry of Health in cooperation with the UN Relief and Works Agency led to the control of polio, as well as measles, tetanus, and other childhood diseases. Monitoring of growth, education relating to nutrition, oral rehydration, and iron and vitamin supplementation of children were introduced as part of routine care.^{8–11}

Referral to Israeli hospitals for medical and surgical care not available locally continued on a wide scale. Palestinian doctors, nurses, and other health professionals received extensive professional training in Israeli teaching

facilities from 1985, and this training still continues. After the Oslo Accord in 1993, Israel transferred health services to the Palestinian Authority, although some cooperation, especially advanced postgraduate training of Palestinian doctors, continues in Israeli hospitals (see Horton and Skorecki¹² in this Series).

As we have already alluded to, waves of immigration (3·2 million people overall) have affected Israeli society in general and the health-care system in particular.¹³ Of note were the hundreds of thousands of survivors of the European Holocaust after World War 2, 700 000 refugees from the surrounding Middle East and north African Arab countries during the 1950s, a wave from Ethiopia in the 1980s onwards, and an influx of about 1 000 000 during the 1990s from the former Soviet Union. Incorporation of such large relative numbers poses challenges to all public systems, including the health services. Additionally, migrant populations present special requirements.^{14,15} For example, the health profile of immigrants from the former Soviet Union was different from that of the native population, with the immigrants experiencing a higher prevalence of chronic diseases, including metabolic conditions, cardiovascular diseases, and hypertension. A higher proportion (15%) of immigrants than is usually present in such cohorts was older than 65 years. In Israel, the present number is 11%. Many needed special care, and life expectancy was about 5 years shorter than that of the Israeli Jews.^{16,17} Usually, migrants face barriers in accessing services. However, Jewish immigrants arriving in Israel become citizens on arrival, according to the Law of Return, and as such can immediately avail themselves of Israel's universal health-care coverage.¹⁸

Until 1995, almost all (>95%) of the Israeli population was insured, even though enrolment within the four competing health plans (Clalit, Maccabi, Meuhedet, and Leumit) was voluntary. The small proportion without coverage comprised mostly poor Israeli ultra-Orthodox Jews and some Israeli Arabs. The premiums set by the plans were paid directly to these organisations by the insured. So-called cream skimming was practised by two of the four health plans before 1995.

Following an influential State Commission, in 1994, the Knesset (Israel's parliament) passed the NHIL mandating that all legal residents of the country receive health services on the basis of the principles of justice, equality, and mutual assistance through a legally defined basket of health services, under the overarching responsibility of the state, and provided by the four not-for-profit health plans. Premiums were graduated by income alone (ie, irrespective of health status), with emergency medical services provided unconditionally. Thus, risk selection became unacceptable. All residents became entitled to a very broad basket of medications, medical services, investigations, and technologies. The basket's contents were specified in the law and are updated, usually annually, via deliberations of a special national committee (panel 1).

Panel 1: The National Advisory Committee on the health basket

The health basket is an explicit and detailed list of technologies (defined as medications, procedures, and tests) that the National Health Insurance Law has determined to be provided by the health plans. When the law was enacted (1995) the basket contained the benefits package that, at the time, had been offered by Clalit Health Services, the largest health plan. A formal priority-setting process for the addition of new technologies was initiated 2 years later.¹⁹

As part of annual budgeting, the government determines the amount of additional funding meant to update the basket. The Ministry of Health solicits recommendations from any interested party (individual citizens, professional organisations, patient-advocacy groups, and even drug companies). Ministry of Health experts review these recommendations via a full technology assessment, including issues of safety, effectiveness, and cost benefit.^{20,21} This assessment includes the marginal cost of adding each new technology, on the basis of current prices and volume projections, with epidemiological data, together with a suggested priority rank.

Each year the Minister of Health appoints a committee, which includes representatives of the Ministries of Finance and Health, all four health plans, health economists, ethicists, and public figures from outside the health-care system. The committee's mandate is to decide which of the proposed technologies should be added to the basket within the previously determined budget constraints. Members make their decisions on the basis of a consideration of the technology assessments, costs, and social and ethical considerations. The Minister of Health is then advised on which new technologies should be adopted.²²

In the first few years, most additions were considered life-saving, with very few involving those that improved quality of life. By 2002, increased priority had been given to both quality of life considerations and preventive services. The decision-making process has become more transparent over the years, with greater public and media access.

While this explicit priority-setting process does present various challenges, it has been considered by many health-policy analysts, both in Israel and abroad, to be a ground-breaking approach to this vexed issue.²³ Furthermore, despite the charged nature of the process, it has earned the wide support of the public, relevant government ministries, the courts, and the key health-care providers in Israel.²

Nowadays, all residents are required to enrol in one of these plans, and the NHIL guarantees free choice among them. Although one can easily switch between plans, this practice is quite rare (<2% annually). This law represented a landmark piece of legislation and over the past two decades has had a powerful and overall positive effect on the entire health sector.

Demography

By 2016, Israel's population had reached 8·5 million. The country joined the Organisation for Economic Co-operation and Development (OECD) in 2010, and compared with most member countries using statistics from WHO, World Bank, and OECD, is still relatively young. Only 11·2% of the population is older than 65 years (OECD average 16%) and 28% are younger than 14 years old (OECD average 16%), although Israel's neighbours are characterised by even younger populations. However, Israel is ageing rapidly and the absolute number of older citizens is growing quickly, with implications for health services (see Dwolatzky and colleagues²⁴ and Rubin and colleagues²⁵ in this Series).

For more on WHO's world health statistics see http://www.who.int/gho/publications/world_health_statistics/2016/en/

For more on World Bank indicators see <http://data.worldbank.org/indicator>

For more on OECD's health statistics see <https://data.oecd.org/Israel.htm>

Panel 2: Health considerations of the Druze

Arabs of the Druze religious faith comprise a 1.5 million transnational population subgroup residing in Lebanon, Syria, Israel, and Jordan.²⁶ In Israel, there are 135 000 members of this community who live largely in the north of the country. Demographic, religious, societal, and cultural history and traditions have had a particularly substantial effect on this group's health status. For example, they experience unique genetic diseases, since Druze ancestral origins in numerous diverse genealogical lineages populating the Middle East in antiquity were followed by an extended period of strict endogamy, with resultant high frequency of consanguinity,²⁷ similar to that observed in Israel's Bedouin population.

This phenomenon has resulted in unusual diversity of rare monogenic disorders that are often kindred-specific and village-specific. These disorders include Tay-Sachs disease, Krabbe disease, Pompe disease, and more than 30 other serious recessive monogenic disorders, some of which are entirely unique to this population.²⁸

According to the Druze religion, tobacco use is forbidden. Therefore, the relatively low prevalence of such addiction, in contradistinction with other Arab communities (which is very high, especially among men), greatly decreases the risk for chronic lung and cardiovascular morbidity, and results in substantially lower prevalence of lung cancer in the Druze population.²⁹ In general, morbidity from many cancers is lower among the Druze population than in both the surrounding Arab and Jewish communities. Some attribute this phenomenon, at least in part, to this group's healthy, non-processed, Middle Eastern diet.³⁰

The Druze population in Israel resides in the 16 villages in Israel and three towns in the Golan Heights and is fully eligible for health coverage according to the tenets of the National Health Insurance Law.³¹ Nevertheless, some community-wide health challenges remain, and have only recently been addressed effectively. These include low vitamin D concentrations in adulthood, resulting primarily from a conservative non-revealing dress code (mainly among women and adolescent girls), which reduces sun exposure and subsequent endogenous vitamin D production.

While Druze physicians and health-care professionals are often employed at major medical centres in the larger cities of northern Israel, many prefer to reside in and commute from homes in the smaller Druze villages. Thus, Druze health-care professionals are often called on for emergency health calls, especially in the more remote villages. Despite the more recent establishment of urgent-care facilities, expectations that health-care professionals will maintain the tradition of accessibility and the close connection with their parent communities remain high.

Israel's population consists of many different groups, but the largest axis is ethnic origin, between Israeli Jews (74.8%) and Israeli Arabs (20.8%). Israeli Jews are usually classified by place of parental birth. While by 2015, 75% of Israeli Jews were born in Israel, in 1948, only 35% were non-immigrants. On another axis, the Israeli Jews are characterised by a spectrum of religiosity (secular, traditional, Orthodox observant and ultra-Orthodox, or Haredi). The Israeli Arabs have traditionally been classified by religion; Muslim (84.5%), Druze (7.9%), and Christian (7.6%), each characterised by unique patterns of education, socioeconomic status, and family size (panel 2).

Of interest is that many, but not all, of the differences in health status according to the axes are attenuated when socioeconomic status and educational level are factored in. Muhsen and colleagues³² give a more complete analysis of health disparities in this Series.

Health status and indicators**Mortality**

Cancer became the leading cause of death for both men and women in 1999, heart disease is the second,^{33,34} cerebrovascular disease is the third, and diabetes is the fourth. All four causes together accounted for more than half of all deaths in 2013 (51% for men and 53% for women), compared with a higher proportion in 2000 (57% for men and 60% for women).

When the top ten causes of death in Israel were compared with other developed countries (2012 data),³⁵ a number of notable differences were apparent. For example, diabetes ranks higher in Israel than in other developed countries (fourth in Israel, yet seventh in Canada and eighth in the USA). Dementia was ranked as only the eighth cause of death in Israel, whereas it ranked third in Holland and Canada, and fourth in the USA, the UK, and Sweden. Accidents were ranked in eighth place in Israel, whereas they were placed third in the USA and France, and fourth in the 15 European Union countries. Chronic lower respiratory disease was only the seventh cause of death in Israel compared with the third cause in the USA, and fourth or fifth cause for most European countries. Finally, sepsis, which is an increasingly prominent cause of death in Israel, was ranked fifth, whereas it does not appear in the ten leading causes of death in most countries.

Health indicators

Overall, the general health status in Israel is favourable, with robust social and family support offering a strong bulwark for the health of the population (panel 3). For example, over the past two decades, life expectancy at birth increased substantially. In 1993, life expectancy was already high (75.3 years for men and 79.1 for women), but by 2014, the figures had increased to 80 years for men and 84 years for women. Notably, in this domain, Israeli men are ranked among the top five OECD countries, while women are only positioned in 15th place.³⁴ Life expectancy in Israel is substantially higher than that in neighbouring countries (table).

Infant mortality during the same period decreased from 7.5 per 1000 livebirths in 1993, to as low as 3 per 1000 in 2013, which is well below mortality for neighbouring countries and lower than the OECD average. Mortality among children has also decreased over the past few decades, and in 2013 mortality in children younger than 5 years was 4 per 1000 livebirths. Rubin and colleagues²⁵ provide further details in this Series on mortality.

When asked, "How is your health in general?", 80% of Israelis reported themselves to be in good health, higher than the OECD average of 69%.³⁵ In the OECD's Better Life Index³⁵ (in the general health domain based on life expectancy and self-rated health), Israel ranked in sixth place (after New Zealand, Canada, Australia, Switzerland, and Iceland).

With respect to health behaviours, smoking, although still prevalent in certain subgroups (eg, Arab men), continues to decrease. By 2013, 20% of adults (aged 20–74 years) were smokers. Obesity, however, is increasing and the latest figures reported by the National Program for Quality Indicators in Community Healthcare indicate that 24% of Israeli adults are obese (body-mass index, ≥ 30 kg/m²). Of note, and possibly an important partial explanation for the country's high life expectancy statistics, excessive alcohol consumption is considerably rarer than in all other developed countries; although, some increase has been observed over the past two decades (Muhsen and colleagues³² in this Series).

As is the case in most other developed countries, notwithstanding the remarkable average levels of health indicators, substantial disparities in health exist over various axes dividing Israeli society (eg Arab–Jewish, religious–secular, and centre–periphery; Muhsen and colleagues³² and Rubin and colleagues²⁵ in this Series). Over time, all sectors of society have shown sizeable improvements in the various health indicators. However, measures of improvement have not been consistent across all sectors.

Notably, the Ministry of Health has recognised health disparities as a priority and is targeting numerous measures towards reducing them. The Ministry of Health publishes a comprehensive annual report dedicated solely to this subject, which details specific programmes by each health plan and other groups for addressing health disparities.^{32,46}

Israel's health-care system

Universal coverage

The health-care system in Israel is financed from taxes, both general taxes and an earmarked payroll tax (health tax) collected by the National Insurance Institute. These funds are allocated to the health plans according to a capitation formula, with a form of risk adjustment, meant to sufficiently compensate the plans for the cost of members' care. It is the main tool used to reduce the potential benefit from (explicit) risk selection or from limiting either the accessibility of high-risk members to medical care or the quality of services provided. Initially, an age-based risk adjustment was adopted, and sex and living in the periphery of country were added later. There are also low out-of-pocket copayments (mainly for medications, visits to specialist physicians, and some diagnostic tests such as sophisticated imaging studies). Each health plan also offers supplementary insurance (which enables, for example, expert consultation or the selection of a surgeon). In full, 75% of the population subscribe to these schemes.

Total expenditures

Israel's national health expenditure, as a percentage of GDP, had increased for several decades. In the 2000s, this increase amounted to 7.6% of gross domestic

Panel 3: Social and family support

It is well accepted that social factors have a substantial effect on health. In this domain, Israel is characterised by strong family and social support among both the Israeli Jews and Israeli Arabs, with the two important sources of family support being children and a spouse. As described in detail elsewhere in this Series (see Rubin and colleagues²⁵ and Granek and colleagues²⁶), fertility in Israel is the highest among Organisation for Economic Cooperation and Development countries (OECD), almost double the average. Marriage in Israel is almost universal; less than 5% of adults are “never married” by the time they are 50 years old.³⁷ Divorce is low compared with OECD countries,³⁸ with the frequency of Israeli adults (older than 50 years) living with their spouse (65% among women and 86% among men) being higher than in other European countries.³⁹

Israelis enjoy strong family ties, and a survey by the Central Bureau of Statistics⁴⁰ indicated that among adults (>20 years), 60% are “highly satisfied” with their connections with family members, and an additional third are “satisfied”. In a cross-national survey, affection by adults older than 25 years towards their parents was compared between Israel, Norway, and Spain, with Israeli children showing the highest proportion of filial affection.⁴¹

Intergenerational family support between adults and their older parents was also assessed in a comparison of Norway, England, Germany, Spain, and Israel, indicating a higher proportion of children acknowledging filial obligation in Spain and Israel than in the northern countries.⁴² In Israel, the intensity of interaction between elderly parents and their children is high, with about 90% reporting having contact at least once a week. These figures are similar to those observed in southern European countries, but higher than those of northern and western European countries.³⁹

Family connections are also strong across multiple generations. Among middle-aged Israelis (50–64 years) approximately 70% have grandchildren. This figure is much higher than that reported in other European countries.⁴³ Notable, and in part reflecting high intergenerational solidarity, is the low percentage of individuals aged 65 years or older who are institutionalised (around 3%—see Dwolatzky and colleagues²⁴ in this Series).

The importance placed on traditional customs and rituals^{44,45} might increase the frequency and intensity of family contact, which could well contribute both to increased social satisfaction and civic stability. The Israeli family (both Arabs and Jews) as an institution appears to be more stable and stronger than that observed in other developed countries, with a probable effect on both objective and subjective health indices.

product (GDP) compared with only 5% in the 1960s. The rise in the relative GDP share is not unique to Israel and is characteristic of most OECD countries, which have experienced continuous increases. However, over the past two decades a plateau has been observed in Israel; in 2015, the percentage GDP on national health expenditure was similar to that of 1994, measured just before the enactment of the NHIL.

National health expenditure was about New Israeli Shekel (NIS) 87 billion (approximately US\$21 billion) with a per capita health expenditure amounting to NIS 9260 (\$2561 purchasing power parity) in 2015. This figure includes services provided in hospitals, clinics, institutes, dental clinics, medication, and other health services, as well as investment in buildings and equipment in health institutions.

Israel is part of a group of countries where the relative amount of national health expenditure and that spent per capita is low,⁴⁷ but who still enjoy favourable health

For more on the **National Program for Quality Indicators in Community Healthcare** report see <http://healthindicators.org.il/en/>

For more on the **National Insurance Institute** see <https://www.btl.gov.il/English%20homepage/Pages/default.aspx>

	Israel	Egypt	Jordan	Lebanon	West Bank and Gaza Strip	OECD (average)
Demographics						
Total population in 2016 (in millions)	8.4	91.5	7.6	5.9	4.4	1281 (total)
Population (% of total)						
0-14 years	28%	33%	36%	21%	41%	18%
≥65 years	11%	5%	4%	8%	3%	16%
Life expectancy at birth (years)						
Men	80	69	72	77	71	78
Women	84	73	76	81	74	83
Maternal and child health						
Infant mortality (per 1000 live births)	3	22	16	8	19	4
Under 5 mortality (per 1000 livebirths)	4	26	19	9	23	7
Total fertility rate (per woman)	2.9	2.8	3.2	1.5	4.2	1.7
Economy						
GDP, per capita (US\$)	36 000	3000	5000	8000	3000	37 000
Total health expenditure (% of GDP)	7.4%	5.5%	7.2%	6.6%	NA	8.9%

Data are n, %, or as stated. Data for all indicators are from 2013, and for total population are from 2016. OECD=Organisation for Economic Cooperation and Development. GDP=gross domestic product. NA=not available.

Table: Selected indicators for Israel, neighbouring countries, and OECD average⁹⁻¹¹

indices and high life expectancies at all ages.⁴⁸ Whether this balance is sustainable remains to be seen.

This low prevalence of expenditure reflects, in part, the use of mechanisms over the past decade for budgetary restraint that were included in the NHIL. However, other factors have also contributed, including government curbing of the supply of health services, (eg, a cap on work force, the number of general hospital beds, and imaging technology), erosion of the resources transferred to the health plans, and a decrease in overall public funding for the whole health-care system.

By financing sector

The funding sources for health are both public and private.⁴⁹ Public funds are collected through general taxation and as health insurance fees by the National Insurance Institute via a progressive income tax. Private funding partly covers expenditures for services not covered by the NHIL, including copayments for some services offered by health funds (eg, visits to a specialist, payment for medicines), but mostly for purchase of services not found in the health basket, such as some medications, dental health services for adults (aged 16 years and older), supplementary insurance, commercial insurance, and other private health services.

An assessment of the long-term associations indicates that the percentage of funding from public sources has declined with a parallel rise from private sources since 1996. When the NHIL was introduced in 1995, public

funding accounted for 70%. Over the ensuing two decades, such funding fell to 60%, with private expenditure making up the remainder.⁵⁰

One of the major components of private health expenditure stems from a substantial increase in supplementary insurance spending (both from private insurance companies and supplementary insurance offered by the health plans), which has more than tripled from only 12% in 1997, to more than 37% in 2015, which is one of the highest proportions observed in the OECD.³⁵

The growing burden of private expenditure on health services has many implications on households, especially for those at the lower end of the socioeconomic-status spectrum and are both associated with economy and health. For example, results of a study, published in 2013,⁵⁰ found that one of five Israelis in the bottom fifth income bracket had to forego the purchase of medications or medical treatments because of economic difficulties. Another study⁵¹ found that 40% of all citizens had delayed or even foregone necessary dental treatment during the previous year because of cost.

Expenditure by operating sector

Health services are provided by four main sectors: the health plans, the Ministry of Health, non-governmental organisations, and for-profit organisations. The four health plans supply most community and hospital services. In addition to offering the legally defined basket of health services, they also operate 13% of all hospital beds (particularly those institutions owned by Clalit, Israel's largest plan). Overall, these organisations are the largest supplier of medical services, accounting for 40% of national expenditure on health.⁵²

The government (including the local authorities), mainly through the Ministry of Health, operates 28% of all hospital beds, some mother and child services, preventive medicine, mental health, and a long list of other health services including funding for geriatric long-term care.^{24,53} The government's direct share of health expenditure amounted to 18% in 2013.

Non-profit organisations (including the Hadassah Medical Organisation and Shaare Zedek hospitals in Jerusalem; the Scottish, Italian, and French Hospitals in Nazareth; Laniado Hospital in Netanya; and other such institutions) provide about 25% of all acute hospital beds across the country. Other non-profits include organisations such as the national ambulance and blood transfusion services (known as Magen David Adom; Israel's equivalent to the Red Cross) and Yad Sarah, which provides home health equipment on loan, among others. The share of these public institutions was 11% of the total health expenditure.

The growing for-profit sector provides various health services, the main one being adult dentistry, which accounts for a third of all such expenditure. However, this sector has also begun to offer specialised surgical

services, often funded by so-called supplementary health insurance mainly purchased from the health plans themselves. Incorporation of this insurance, which most Israelis hold, into the NHIL to increase equity in the provided health service has had much discussion.

Comprehensive services

National health expenditures are disbursed according to the major institutions responsible for providing services. In 2015, but only after decades of preparations and recurring delays, a substantial reform was implemented that meant to transfer the responsibility for the provision of mental health services from the Ministry of Health to the health plans, thus expanding and further rationalising the purview of NHIL. While dental care for children (age <15 years) is now included in the basic basket, coverage of geriatric institutional long-term care is still in the long-delayed planning stages (Dwolatzky and colleagues).²⁴

Another public element includes those services under the responsibility of the social security (National Insurance Institute): obstetric hospitalisation, work accidents, and homemaker services provided under the Long-Term Care Insurance Program in 1988, for personal home care of the functionally impaired (most of whom are elderly), and others.^{24,54} The others element includes those services provided by other government bodies, principally the Ministry of Defense, which funds the Israeli Defense Forces' day-to-day medical and rehabilitation costs for its personnel, in addition to the ongoing care of disabled veterans.

Unique national programmes and processes

Israel enjoys some instructive national programmes designed to monitor and improve the quality of services. We briefly describe some of these initiatives here.

Israel National Institute for Health Policy Research

A unique NHIL clause described a duty to supervise its implementation. An independent body, the Israel National Institute for Health Policy Research (NIHPR), was chosen to take on the task of researching the quality, effectiveness, and cost of the health services, with funding from a specific fraction of the health tax.

To meet this Institute's goals, an annual call for proposals was issued. Applications are subjected to a thorough peer-review process. To date, more than 500 funded research projects have been completed, most of which have been published in peer-reviewed journals.

An additional NIHPR mandate includes the encouragement of scientific and public discourse and cooperation of all relevant organisations and individuals, including academia and government. A series of meetings are held, the premier among them being the annual Dead Sea Conference, which functions as the system's think tank. Conference conclusions often serve as policy guidelines for the government.

Panel 4: Primary care—long a priority

In part reflecting Israel's history of the development of its health-care system, primary care provides excellent services in more than 5000 clinics and physicians' offices distributed throughout the country. These clinics offer the first point of call and they also serve as gatekeepers to both hospital and specialist care. An Organisation for Economic Cooperation and Development countries report⁶⁰ commended the very high standard of primary care delivered in Israel.

Primary-care services are highly accessible and on most occasions the waiting time for an appointment does not exceed 3 days, with two-thirds of patients are seen by a physician on the same day. Approximately 7000 primary-care doctors work with the four health plans, many of whom are specialists in family medicine, paediatrics, or internal medicine. Patients are likely to have access to primary-care doctors and nurses near their homes, and those with chronic disease, such as diabetes, benefit from nationwide monitoring and care programmes run by the health plans. Population satisfaction from the primary-care services is consistently high.⁶¹

Ambulatory specialist care is provided mainly in community-based clinics operated by the health plans in addition to outpatient clinics operated by all hospitals. Many specialists work both in hospitals and in the community in more than one job, while some are employed in one sector exclusively. Hospitals sometimes subcontract with a health plan to provide care in a clinic run by the plan to secure secondary and tertiary inpatient market share. Some specialist clinics (eg, dermatology, otolaryngology, and orthopaedics) do not require referral by the primary-care physician.

International workshops are held twice per year, where leading experts from Israel and abroad convene for the purpose of an in-depth study of a focused topic, using a between-country compare-and-contrast method. In 2016, one meeting focused on the optimal mechanisms for hospital budgeting and in December, the international workshop was devoted to medical professionalism.

National conferences are held annually and international meetings take place every few years, the latest one being held in 2016, with participants from 40 countries. Furthermore, in 2012, the NIHPR established an online peer-review system, the *Israel Journal of Health Policy Research*, which enables dialogue among international scholars and practitioners.

National Program for Quality indicators in Community Healthcare in Israel: assessing quality of care

The National Program for Quality indicators in Community Healthcare (QICH) in Israel originated more than 15 years ago, initially as a research project funded by the NIHPR.⁵⁵ Following the project's success in advancing the quality of care in primary care, more than 10 years ago the Ministry of Health established it nationally under the supervision of the NIHPR. This extension is an instructive example of research leading to practice.

This programme now enjoys the full support and voluntary cooperation of all four health plans and is led by a separate, distant, academic directorate. The QICH maintains a measure of the quality of primary care and assesses health, wellness, and disease management through quality indicators in eight major clinical domains: health promotion, cancer screening, child and

For more on the **international workshops** see <http://www.israelhpr.org.il/e/107/>

For more on the **workshop on hospital budgeting** see <http://www.israelhpr.org.il/e/99/85.htm>

For more on the **Israel National Institute for Health Policy Research** see <http://www.israelhpr.org.il/e/>

adolescent health, health in adults aged 65 years or older, respiratory diseases, cardiovascular health, diabetes, and antibiotic use. Data are systematically collected for the entire population (not via sampling) with the electronic health records of the four health plans (see Balicer and Afek⁵⁶ in this Series) to create national level and health plan-specific quality measures that are publically reported annually.^{57,58}

Decision making concerning the addition of new indicators and updates of existing ones is made via consensus within a steering committee representing all relevant stakeholders.

An OECD review of the quality of primary health care concluded that “Israel’s efforts over the past decade have developed one of the most sophisticated programmes to monitor the quality of care in primary care across OECD countries”⁵⁹ (panel 4). This initiative is a good example of the synergistic effects of the so-called start-up nation mentality in the health sector, which characterises large portions of the Israeli ethos addressed in two articles in this Series.^{56,62}

Following this assessment, a quality indicators programme for hospitals was launched in 2012, led by a special Ministry of Health unit, which now assesses care of all general, psychiatric, and geriatric hospitals and also mother and child clinics, prehospital emergency care, and psychiatric rehabilitation services. This programme is regulatory-based and the institutions involved are required to report administrative and clinical data relevant to quality indicators selected by an academic steering committee. The first public report⁶³ was issued in 2015.

Challenges to the system

Despite Israel’s noteworthy health-care system and the country’s laudable health statistics in the face of low national expenditure, challenges remain. In this section we address some issues not covered in other papers in this Series.

Underfunding and absence of institutional reserve

Despite population growth and increased demand, the relative expenditure on health care has stayed largely static over the past decade, with less than 8% of GDP devoted accordingly. This situation is in contrast with the rising health-care expenditure in most OECD countries. However, it is feared that a tipping point will be reached and that spending caps will eventually have an adverse systemic effect on the quality of care provided for Israel’s citizens. For example, the few acute hospital beds, almost all public hospitals (1.8 per 1000 population, one of the lowest in the OECD), result in a constrained average length of stay of only 4.1 days (especially, but not restricted to, internal medicine wards in the winter) and overall average occupancy of 98% (compared with 78% in the OECD), which points to an impending crisis.⁶⁴

Given the ever-present possibility of a national mass casualty event (eg war, terrorism, earthquake—Israel, the

West Bank, and Jordan all straddle the Syro–African Rift—or other cause), the health-care system clearly does not have adequate reserves. Recurrent media attention has been paid to the issue for years,⁶⁵ but with little practical response from the Finance Ministry.

However, in 2016, the government promised to add 2100 general beds over the next few years.⁶⁶ Although an encouraging pledge, it remains to be seen if this commitment will actually be fulfilled. Even after this promised addition, the amount of acute beds will still be less than the OECD average and will not adequately address the continued growth and ageing of the population. Additionally, advanced technologies (eg, imaging) are under strict regulatory control, but this control is also being addressed by the Ministry of Health.

Confused governance

For historical reasons, more than half of acute hospitals are still government-owned and operated. Therefore, the Ministry of Health is an owner and provider, but also has regulatory authority over these same institutions, as well as all others against which they compete for market share.

Over the years, this arrangement has raised concerns. First, this dual role creates a major structural problem within the Ministry of Health. Second, the ministry’s role as an effective operator of services in its own hospitals is frequently judged to be bureaucratic, cumbersome, and administratively inflexible. Third, the fact that the Ministry of Health acts both as an owner–operator and a regulator creates a concern by some that there might be an inherent conflict of interest (both financial and regulatory) between government-owned and other hospitals providing an unfair advantage to the government institutions over the others. Finally, the burden of providing day-to-day health services in its own hospitals distracts the Ministry of Health from its overarching role in long-term planning, regulation, and leadership in the health-care system.

In response, consideration has been given to the creation of independent trusts run by boards of directors for both government-owned and other hospitals. This arrangement would allow for separate and independent management, with predefined authority and responsibilities, thus allowing an economic business model. Additionally, it would encourage an increase in competition among hospital services, and would lead to greater efficiency with a more appropriate allocation of resources.

Since the 1990s, various attempts have been made to implement such a reorganisation. However, despite a broad national consensus, none of the attempts have been successful. Many barriers exist that impede change and sustain this failure.

The involved stakeholders have many concerns in implementing such a change. For its part, the Ministry of Health is concerned with relinquishing power, direct control, and its perceived need to handle operation of health services under competitive conditions and national

budget deficits. The managements are concerned about the uncertainty with which they would be faced, due to the obligation to operate in an economically profitable (or at least a balanced) manner under more competitive conditions. As hospitals are labour-intensive, they are represented by strong professional organisations that have largely resisted such changes, with employees concerned about losing their status and perquisites.

This complexity has led to the idea of implementing such a separation in stages. Over the past 5 years, some steps in this direction have been taken successfully; still, there is much more to be done in this domain.

Response to international accreditation bodies

No country stands alone, and for Israel in particular, international connections and professional recognition are both crucial. About two-thirds of Israel's general hospitals have undergone international accreditation offered by Joint Commission International. To our knowledge, Israel is the only country requiring such accreditation as a criteria for Ministry of Health licensure.

Although Israel's Council for Higher Education accredits medical faculties, given the number of graduates who choose to take training abroad (usually subspecialty fellowship and to garner further research expertise), the system also needs to meet many international demands. Of interest is the scene in the USA, where traditionally many Israeli graduates go for some part of their postgraduate training.

To date, the absence of internationally recognised accreditation of Israel's medical schools has not caused too much of a bureaucratic difficulty. However, by 2023, new Educational Commission for Foreign Medical Graduates guidelines require that doctors applying for American certification must have graduated from a school that has been appropriately accredited. In Israel's case this task falls under the purview of the Council for Higher Education, but, at least to date, this body has been reticent to take on this task, one so vital to maintaining the high quality of Israel's medical professionals.

Coordination with neighbouring health authorities

While peace treaties with both Jordan and Egypt have held steady over the past few decades, diplomatic relationships still do not exist between Israel and any other neighbouring Arab countries. Additionally, even for Egypt and Jordan, collaboration between health-care systems and the relevant professions is still minimal, mainly due to opposition by medical unions in these two countries. Concerns regarding political normalisation, felt by many Palestinian health professionals, constrains those who might otherwise want to cooperate with their Israeli medical counterparts.

However, as disease, pathogens, water sources, and the environment recognise no borders, coordination on regional health-care issues remains a huge challenge.

For their part, since Palestinians and Israelis share a small, densely populated, geographical area, it is essential that they cooperate in public health issues, despite the political challenges.

Initially, following the Oslo Accord, a Public Health Joint Committee was created in 1993, comprising Israeli and Palestinian Authority officials who met regularly to exchange public health data and discuss immunisation, epidemiological reports, and disease outbreaks. However, these meetings became less frequent after the second Palestinian uprising (Intifada) in 2000, although ad-hoc bilateral conclaves relating to disease outbreak control still take place at the request of either party.

Notably, even during the most difficult exacerbations of the Israel–Palestine conflict, some bilateral cooperation with the neighbouring countries, including the Palestinian Authority, has been maintained.⁶⁷ Israel has cooperated with the Palestinian health sector in capacity-building initiatives, which gained little publicity, but which have been modestly successful,⁶⁸ including via various non-governmental organisations (eg, the Peres Center for Peace).

Despite the challenges, including calls for an academic boycott of Israeli academics,⁶⁹ some bilateral teams continue to cooperate in research^{70,71} and in the training of health professionals.⁷² Peaceful, albeit quiet, resolutions to epidemiological and environmental problems have also been reached and food security issues resolved.

Despite the region's fraught history, visitors have been impressed by the equal and impartial treatment of all patients within Israeli medical settings across the country.⁷³ Indeed, patients even cross hostile borders—eg, from the Gaza Strip and Syria—to receive care in Israeli hospitals (see Bahouth and colleagues⁷⁴ in this Series). Reflecting the laudable principle that health should overcome politics, Israel agreed to hospitalise the mother-in-law of Ismail Haniyeh, the head of Hamas in the Gaza Strip.⁷⁵

From the point of view of public health, in 2003, an international partnership of two non-governmental organisations (Search for Common Ground and the Nuclear Threat Initiative) began facilitating regional cooperation. This agreement helped to establish the Middle East Consortium on Infectious Disease Surveillance in which the Ministry of Health for Israel, the Palestinian Authority, and Jordan share data on food-borne disease outbreaks; the Egyptian Ministry of Health has also participated in this project. As part of this work, joint training courses were held on interventional epidemiology and on laboratory technologies.

A particularly apt example of cross-border cooperation is the regional collaboration between Israeli, Jordanian, and Palestinian veterinary and public health services to contain outbreaks of influenza A H5N1.⁷⁶ Other relevant efforts include cancer research and care, earthquake preparedness, and others.^{77,78}

For more on the **Joint Commission International** see <http://www.jointcommissioninternational.org/>

For more on the **Peres Center for Peace** see <http://www.peres-center.org/>

For more on the **Educational Commission for Foreign Medical Graduates guidelines** see <http://www.ecfmg.org/about/initiatives-accreditation-requirement.html>

For more on the **American certification** see <http://www.ecfmg.org/certification/index.html>

For more on the **accreditation** see <http://www.ecfmg.org/about/initiatives-accreditation-requirement.html>

Conclusion

Israel has developed a unique model of health care, rooted in the country's unusual history, unique cultures, population, and political system. Overall, despite many challenges, both functional and structural, Israeli Arabs and Israeli Jews enjoy excellent health-care services, with resultant positive health indices. That being said, as in too many countries around the world, health disparities continue to exist. Many obstacles have been overcome but challenges remain. The articles in this Series address many of these issues in more detail.

Contributors

All authors were involved with the study conception and design. SS, AMC, OM, AI, GBN, and FB acquired, analysed, and interpreted the data. AMC was responsible for coordinating comments and feedback from all coauthors during the drafting of the manuscript. All authors reviewed and approved the final manuscript.

Declaration of interests

All authors declare no competing interests.

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References

- One World Nations Online. Countries of the world by area. http://www.nationsonline.org/oneworld/countries_by_area.htm (accessed Jan 31, 2017).
- Rosen B, Waitzberg R, Merkur S. Israel: health system review. *Health Syst Transit* 2015; 17: 1–212.
- Sachar HM. A history of Israel: from the rise of Zionism to our time. New York (NY): Random House, 2007.
- Watt G, Giacaman R, Zurayk H, Horton R, on behalf of the LPHA Steering Group. Progress of *The Lancet* Palestinian Health Alliance. *Lancet* 2014; 383: e5–6.
- Shvarts S, Shehory-Rubin Z. Hadassah for the health of the people. Tel Aviv: Samuel Watchman's Sons Inc and Dekel Academic Press, 2012: 161–171.
- Shvarts S. The Workers' Health Fund in Eretz Israel. Martlesham: Boydell and Brewer Press, 2002: 340.
- Muller T. Medical expertise—the Zionist vision: medicine and physicians among the immigrants to Israel/Palestine. *Ber Wiss* 2005; 28: 321–336 (in German).
- Tulchinsky TH, Abed Y, Shaheen S, et al. A ten year experience in the control of poliomyelitis through a combination of live and killed vaccines in two developing areas. *Am J Public Health* 1989; 79: 1648–52.
- Tulchinsky TH, Friedman JB, Acker C, Ben David A, Slater PE. Tetanus in Israel, Judea/Samaria and Gaza, 1968–89: progress and challenge. *Isr J Med Sci* 1990; 26: 438–42.
- Tulchinsky TH, Al Zir AM, Abu Munshar J, et al. A successful, preventive-oriented village health worker program in Hebron, the West Bank, 1985–1996. *J Public Health Manag Pract* 1997; 3: 57–67.
- Tulchinsky TH. Health in Judea/Samaria and Gaza, 1967–1990. In: Wasserman M, Kottek SS, eds. Health and disease in the Holy Land: studies in the history and sociology of medicine from Ancient times to the present. Lewiston: Edwin Mellen Press, 1996.
- Skorecki K, Horton R. Israel: health and beyond. *Lancet* 2017; published online May 8. [http://dx.doi.org/10.1016/S0140-6736\(17\)30877-2](http://dx.doi.org/10.1016/S0140-6736(17)30877-2).
- Israel Central Bureau of Statistics. Population of Israel 2005–2014. http://www.cbs.gov.il/statistical/isr_pop_heb143.pdf (accessed Jan 29, 2017; in Hebrew).
- WHO. International migration, health and human rights. Health and Human Rights Publication Series, Issue 4. Geneva: World Health Organization, 2003.
- Davidovitch N, Filc D, Novack L, Balicer RD. Immigrating to a universal health care system: utilization of hospital services by immigrants in Israel. *Health Place* 2013; 20: 13–18.
- Rennett G. Implications of Russian immigration on mortality patterns in Israel. *Int J Epidemiol* 1994; 23: 751–75.
- Carmel S, Lazar A. Health and well-being among elderly persons in Israel: the role of social class and immigration status. *Ethn Health* 1998; 3: 31–43.
- Shuval JT. Migration to Israel: the mythology of “uniqueness”. *Int Migr* 1998; 36: 3–26.
- Israel Ministry of Health. Jerusalem, Israel. Process of expanding the list of health technologies and working of the Public Committee. <https://www.health.gov.il/Services/Committee/vsal/Pages/default.aspx> (accessed Feb 27, 2017; in Hebrew).
- Chinitz D, Israeli A. Priority setting in Israel. Trade-offs have to be made everywhere. *BMJ* 2010; 341: c682.
- Chinitz D, Shalev C, Galai N, Israeli A. The second phase of priority setting. Israel's basic basket of health services: the importance of being explicitly implicit. *BMJ* 1998; 317: 1000–07.
- Shani S, Siebzeher MI, Luxenburg O, Shemer J. Setting priorities for the adoption of health technologies on a national level: the Israeli experience. *Health Policy* 2000; 54: 169–85.
- Golan O, Hensen P. Which health technologies should be funded? A prioritization framework based explicitly on value for money. *Isr J Health Policy Res* 2012 1: 44.
- Dwolatzky T, Brodsky J, Azaiza F, Clarfield AM, Jacobs JM, Litwin H. Coming of age: health-care challenges of an ageing population in Israel. *Lancet* 2017; published online May 8. [http://dx.doi.org/10.1016/S0140-6736\(17\)30789-4](http://dx.doi.org/10.1016/S0140-6736(17)30789-4).
- Rubin L, Belmaker I, Somekh E, et al. Maternal and child health in Israel: building lives. *Lancet* 2017; published online May 8. [http://dx.doi.org/10.1016/S0140-6736\(17\)30929-7](http://dx.doi.org/10.1016/S0140-6736(17)30929-7).
- Rohland P. Druze. <http://www.everyculture.com/multi/Bu-Dr/Druze.html> (accessed Feb 26, 2017).
- Shlush LI, Behar DM, Yudkovsky G, et al. The Druze: a population genetic refugium of the Near East. *PLoS One* 2008; 3: e2105.
- Israel Ministry of Health. Recommended genetic screening for Arab and Druze populations. http://www.health.gov.il/Subjects/Genetics/Documents/BZ07_2013-Arabs.pdf (accessed April 1, 2016; in Hebrew).
- Israel Ministry of Health. Health status in Israel 2010. http://www.health.gov.il/PublicationsFiles/Health_Status_in_Israel2010.pdf (accessed April 1, 2016; in Hebrew).
- Atzmon I, Linn S, Portnov B, Richter E, Keinan-Boker L. Lower cancer rates among Druze compared to Arab and Jewish populations in Israel, 1999–2009. *J Relig Health* 2014; published online Dec 17. DOI:10.1007/s10943-014-9973-5.
- Israel Central Bureau of Statistics. The Druze population of Israel. Collected data for the Jethro Holiday. www.cbs.gov.il/hodaot2014n/11_14_097b.doc (accessed April 1, 2016; in Hebrew).
- Muhsen K, Green MS, Soskolne V, Neumark Y. Inequalities in non-communicable diseases between the major population groups in Israel: achievements and challenges. *Lancet* 2017; published online May 8. [http://dx.doi.org/10.1016/S0140-6736\(17\)30574-3](http://dx.doi.org/10.1016/S0140-6736(17)30574-3).
- Goldberg N, Aburbah M, Haklai Z. Leading causes of death in Israel 2000–2012. Jerusalem: Ministry of Health, 2015.
- Israel Ministry of Health. Health in Israel. Jerusalem: Ministry of Health, 2014.
- OECD. Health at a glance 2015: OECD indicators. Paris: OECD Publishing, 2015.
- Graneck L, Nakash O, Carmi R. Women and health in Israel. *Lancet* 2017; published online May 8. [http://dx.doi.org/10.1016/S0140-6736\(17\)30563-9](http://dx.doi.org/10.1016/S0140-6736(17)30563-9).
- Israel Central Bureau of Statistics. Statistical abstracts of Israel. Jerusalem: Israel Central Bureau of Statistics, 2014.
- OECD. OECD family database. 2015. <http://www.oecd.org/els/family/database.htm> (accessed Feb 26, 2017).
- Ben Simhon M, Schnoor Y, Brodsky J, Sabah Y, Hugh F. Social networks and satisfaction among individuals aged 50 and above in Israel and Europe: SHARE study. In: Sabah Y ed. Review of Social Services in 2012. Jerusalem: Ministry of Social Affairs and Services, 2013.
- Israel Central Bureau of Statistics. Social survey. Jerusalem: Israel Central Bureau of Statistics, 2013.

- 41 Katz R, Gur-Yaish N, Lowenstein A. Motivation to provide help to older parents in Norway, Spain, and Israel. *Int J Aging Hum Dev* 2010; 71: 283–303.
- 42 Lowenstein A, Daatland SO. Filial norms and family support in a comparative cross-national context: evidence from the OASIS study. *Ageing Soc* 2006; 26: pp 203–23.
- 43 SHARE. Data access and documentation. <http://www.share-project.org/data-access-documentation.html> (accessed Feb 26, 2017).
- 44 Lavee Y, Katz R. The family in Israel: between tradition and modernity. *Marriage Fam Rev* 2003; 35: 193–217.
- 45 Shuval JT, Anson O. Social structure and health in Israel. Jerusalem: Hebrew University Magnes Press, 2000.
- 46 Horev T, Averbuch E. Coping with health inequalities: a roadmap for developing a national plan. The Israeli experience. Jerusalem: Health Economics and Insurance, Ministry of Health, 2012.
- 47 Israel Central Bureau of Statistics. National expenditure on health. http://www.cbs.gov.il/reader/newhodaot/hodaa_template.html?hodaa=201608253 (accessed Oct 11, 2016; in Hebrew).
- 48 Kaidar N, Horev T. International comparisons in health systems. Jerusalem: Ministry of Health, 2010.
- 49 Bin Nun G, Berlowitz Y, Shani M. The health system in Israel. Tel Aviv: Ministry of Defense, 2010.
- 50 Israel Central Bureau of Statistics. The National Health Insurance Law—collected statistical data 1995–2013. 2016. http://www.cbs.gov.il/shnaton67/diag/06_04.pdf (accessed Sept 22, 2017).
- 51 Israel Central Bureau of Statistics. The welfare of the Israel population—preliminary findings from the Social Survey. 2007. http://www.health.gov.il/PublicationsFiles/Stat1995_2013.pdf (accessed Feb 26, 2016).
- 52 Israel Central Bureau of Statistics. National health expenditure by operating sector. Jerusalem: Israel Central Bureau of Statistics, 2014.
- 53 Siegel J. Taub Centre says Israel is 'unprepared' to deal with elderly. *The Jerusalem Post* (Jerusalem), Feb 28, 2017; 4.
- 54 Asiskovitch S. The long-term care insurance program in Israel: solidarity with the elderly in a changing society. *Isr J Health Policy Res* 2013; 2: 3.
- 55 Porat A, Rabinowitz G, Raskin-Segal A. Quality indicators for community healthcare in Israel. Public report 2003–2005. <http://healthindicators.org.il/wp-content/uploads/2014/08/Israel-quality-indicators-2003-2005-English1.pdf> (accessed Feb 26, 2016).
- 56 Balicer RD, Afek A. Digital health nation: Israel's global big data innovation hub. *Lancet* 2017; published online May 8. [http://dx.doi.org/10.1016/S0140-6736\(17\)30876-0](http://dx.doi.org/10.1016/S0140-6736(17)30876-0).
- 57 Jaffe D, Shmueli A, Ben-Yehuda A, et al. Community healthcare in Israel: quality indicators 2007–2009. *Isr J Health Policy Res* 2012; 1: 3.
- 58 Manor O, Shmueli A, Ben-Yehuda A, Paltiel O, Calderon R, Jaffe DH. National Program for Quality Indicators in Community Healthcare in Israel Report: 2011–2013. Ramat Gan: Israel National Institute for Health Policy Research, 2014 (in Hebrew).
- 59 OECD. OECD reviews of health care quality: Israel. 2012. http://www.oecd.org/israel/ReviewofHealthCareQualityISRAEL_ExecutiveSummary.pdf (accessed Oct 11, 2016).
- 60 OECD. OECD reviews of health care quality: Israel. 2012. http://www.oecd.org/israel/ReviewofHealthCareQualityISRAEL_ExecutiveSummary.pdf (accessed Oct 11, 2016).
- 61 Bramley-Greenberg S, Medina-Hartum T. Public opinion on the level of service and the function of the health system in 2013, and comparison with previous years. Jerusalem: Myers–JDC–Brookdale Institute, 2014.
- 62 Beyar R, Zeevi B, Rechavi G. Israel: a start-up life science nation. *Lancet* 2017; published online May 8. [http://dx.doi.org/10.1016/S0140-6736\(17\)30704-3](http://dx.doi.org/10.1016/S0140-6736(17)30704-3).
- 63 Zohar A. National program for hospital quality indicators. Findings from 2013–2015. http://www.health.gov.il/PublicationsFiles/Quality_National_Prog_2013-15_Presentation.pdf (accessed Oct 10, 2016; in Hebrew).
- 64 Taub Center for Social Policy Studies in Israel. Hospital occupancy rates in Israel are among the highest among developed countries. Mar 2, 2015. <http://taubcenter.org.il/hospital-occupancy-rates-israel-highest-among-developed-countries/> (accessed Oct 11, 2016).
- 65 Efrati I. Overcrowded Israeli hospitals strain to cope with flu outbreak. *Haaretz* (Tel Aviv), Feb 3, 2015. <http://www.haaretz.com/israel-news/.premium-1.640430> (accessed Jan 15, 2017).
- 66 Times of Israel Staff. Cabinet unanimously okays two-year budget after marathon talks. *Times of Israel* (Jerusalem), Aug 12, 2016. <http://www.timesofisrael.com/cabinet-unanimously-okays-two-year-budget-after-marathon-talks/> (accessed Aug 18, 2016).
- 67 Barnea T, Abdeen Z, Garber R, et al. Israeli–Palestinian cooperation in the health field, 1994–1998. Jerusalem: Al-Quds University and JDC–Brookdale Institute, 2000.
- 68 Goldfield N. Peace-building through health in the Israeli–Palestinian conflict: the six-year experience of healing across the divide. <http://www.mei.edu/content/peace-building-through-health-israeli-palestinian-conflict-six-year-experience-healing> (accessed Oct 13, 2016).
- 69 Nelson C, Brahm GN. The case against academic boycotts of Israel. Detroit (MI): Wayne State University Press, 2015.
- 70 Kleinstern G, Abu Seir R, Perlman R, et al. Ethnic variation in medical and lifestyle risk factors for B cell non-Hodgkin lymphoma: a case-control study among Israelis and Palestinians. *PLoS One* 2017; 12: e0171709.
- 71 Biber A, Abuelaish I, Rahav G, et al. A typical hospital acquired methicillin resistant *Staphylococcus aureus* clone is widespread in the community in the Gaza Strip. *PLoS One* 2012; 7: e42864.
- 72 Simon T, Aharonson-Daniel L, El-Hadid M, Bruria A. Cross-border emergency coordination and communications using social media: developing joint Israeli–Jordanian standard operating procedure for leveraging social media in emergencies. *Int J Emerg Manage* 2015; 11: 169–90.
- 73 Horton R. Offline: people to people. *Lancet* 2014; 384: 1332.
- 74 Bahouth H, Shlaifer A, Yitzhak A, Glassberg E. Helping hands across a war torn border: the Israeli medical effort treating casualties of the Syrian Civil War. *Lancet* 2017; published online May 8. [http://dx.doi.org/10.1016/S0140-6736\(17\)30759-6](http://dx.doi.org/10.1016/S0140-6736(17)30759-6).
- 75 Times of Israel Staff. Haniyeh's mother-in-law treated in Israel. *Times of Israel* (Jerusalem), June 3, 2014. <http://www.timesofisrael.com/haniyehs-mother-in-law-treated-in-israel/> (accessed Oct 13, 2016).
- 76 Leventhal A, Ramlawi A, Belbiesi A, Balicer R. Regional collaboration in the Middle East to deal with H5N1 avian flu. *BMJ* 2006; 333: 856.
- 77 Levin A. Middle East Cancer Consortium stays on track to collect data. *J Natl Cancer Inst* 1998; 90: 807–08.
- 78 Simon T, Adini B, El-Hadid M, Goldberg A, Aharonson-Daniel L. The race to save lives: demonstrating the use of social media for search and rescue operations. *PLoS Curr* 2014; published online Nov 6. DOI:10.1371/currents.dis.806848c38f18c6b7b0037f3ac3cd4edc5.

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