

# Country report Israel - October 2013

## Statistics update in October 2019



Report by **Prof Yaakov Henkin**, National CVD Prevention Coordinator for Israel (-2017), *et al.*  
Statistics update by **Dr Barak Zafrir**, National CVD Prevention Coordinator for Israel (2017-)  
Prepared for the EACPR "Country of the Month" initiative

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## I. Structure of health care in Israel

### General description of the country

Israel is a representative democracy with a parliamentary system and proportional representation. It is small and narrow in size (approximately 27,000 km<sup>2</sup>, about the size of New Jersey) with desert conditions in the south, and snow-capped mountains in the north. The number of inhabitants is 9 million, of whom around 75% are Jews whose origin is from a large diversity of countries, and around 20% are Arabs (not including the occupied territories). Israel is a developed country, an Organisation for Economic Co-operation and Development (OECD) member, and its economy, based on the nominal gross domestic product, was the 32 largest in the world in 2018. Despite limited natural resources, intensive development of the agricultural and industrial sectors over the past decades has made Israel largely self-sufficient in food production, apart from grains and beef. Leading exports include electronics, software, computerized systems, communications technology, medical equipment, pharmaceuticals, fruits, chemicals, military technology, and cut diamonds.

Life expectancy at birth in Israel stands at 82.6 years (84.6 years for women and 80.6 years for men) - two years above the OECD average. Total health spending accounts for 7.3% of GDP in Israel, which is less than the average of 9.6% in OECD countries.

#### References:

1. <http://www.oecdbetterlifeindex.org/countries/israel/> (English)
2. <http://www.who.int/countries/isr/en/> (English)

### Structure of health care

In 1995 the National Health Insurance Law came into effect, which made membership in one of the four existing non-for-profit Health Maintenance Organisations (HMOs) compulsory for all Israeli citizens. These HMOs, the largest of which are Clalit Health Services (covers around 55% of the population) and Macabi Health Services (around 24%), provide health services around the country. Transfer between HMOs is permitted every 4 months. Each HMO is sub-divided into districts with separate managements, and operates primary care clinics in almost every city and village around the country. These

clinics can vary in size from a single physician and nurse to large multi-disciplinary clinics. Secondary care is provided mostly through specialist clinics in the community as well as in hospitals. There are 45 hospitals (33 general hospitals) in the country, of which about half provide tertiary cardiology services with cath. labs (including primary PCI). There are 3400 physicians, ~60 cardiologists and 3 cardiac rehabilitation units per million citizens. However, the availability of medical personnel, which in the past heavily depended on immigration from the Soviet Union, is now gradually declining and a shortage of physicians and nurses is already detectable.

**The Ministry of Health** owns and runs the majority of public hospitals, supervises the HMOs, auspices the National Health Basket committee, coordinates the National Program for Quality Indicators in Community Healthcare in Israel (QICH - see below) and promotes legislation relating to health issues. It also provides free well-baby programs, some medical services to school-children and financial support from special projects in risk-factor reduction (see below).

## Finances

The HMOs are membership-based and operate under the guidance of a National Health Insurance law that determines a uniform benefits package for all citizens (National Health Basket) - a list of medical services and treatments which each of the HMOs is required to provide and fund for its members. The Uniform Benefits Package covers all costs in the areas of family medicine, emergency treatment, elective surgery, transplants, and medications for serious illness. This "basket" includes most preventive services, though visits to a nutritionist (up to 14 treatment sessions/year) require a small co-payment. In addition, the HMOs provide an option to purchase "supplementary insurance", which includes services beyond those covered by the publicly funded system. Funding of the HMOs is provided by taxation through Israel's social security organisation, which transfers funding to the HMOs according to a formula based on the number of members, age distribution, and a number of other indices. Fees to the social security are deducted automatically as a fixed percent of the citizens' salary. Visits to primary care physicians are free of charge, and a small co-payment is charged for specialist visits. Medications that are covered by the health basket are also provided with a small co-payment, while those not included in the basket are often more expensive. Smoking cessation workshops and medications are provided without cost, as are the first 3 months of cardiac rehabilitation programs (9 additional months are covered by supplementary insurances).

## II. Risk factor statistics

During the past decade, a significant drop has been found in mortality from heart disease in Israel, and today malignant neoplasms are the leading cause of death. Death rates from diseases of the heart and cerebrovascular disease have declined by more than 80% from the 1970s. Thirty-day mortality from myocardial infarction in Israeli hospitals declined from average of 8.1% to 4.1% between 2000-2009. In the Israeli 2016 ACSIS survey of patients after acute coronary syndrome, the 30-day mortality rates declined to only 3.0%.

### Leading Cause of Death by Year in Israel (2000-2016)

Cause of death	2000	2005	2010	2012	2013	2014	2015	2016
<b>Total</b>	<b>650.8</b>	<b>599.4</b>	<b>509.3</b>	<b>507.8</b>	<b>488.1</b>	<b>481.7</b>	<b>491.3</b>	<b>476.4</b>
1 Malignant neoplasms	151.6	143.5	134.8	130.1	127.0	126.0	124.5	120.7
2 Heart disease	143.1	117.5	87.0	78.4	76.9	74.6	74.1	72.7
3 Diabetes	41.0	37.0	29.5	27.7	27.2	27.0	27.9	24.7
4 Cerebrovascular disease	46.3	41.3	29.4	30.1	27.2	26.7	27.1	24.4
5 Septicemia	13.6	13.2	15.0	20.8	19.0	21.1	22.6	23.0
6 Kidney disease	20.5	26.9	19.1	20.1	17.2	16.7	17.9	16.9
7 Dementia	7.1	4.9	12.8	13.4	12.6	13.0	14.7	16.3
8 Influenza and pneumonia	12.8	13.4	10.9	11.7	11.0	11.7	13.7	13.4
9 CLRD	22.7	18.6	14.6	15.0	14.2	14.7	14.7	13.2
10 Accidents	21.6	18.9	15.1	13.2	13.1	11.7	12.7	13.1
11 Hypertension	10.1	8.9	8.2	8.4	7.3	7.7	8.0	8.8
12 Alzheimer's disease	4.4	5.7	6.2	6.5	7.1	7.5	7.1	7.3

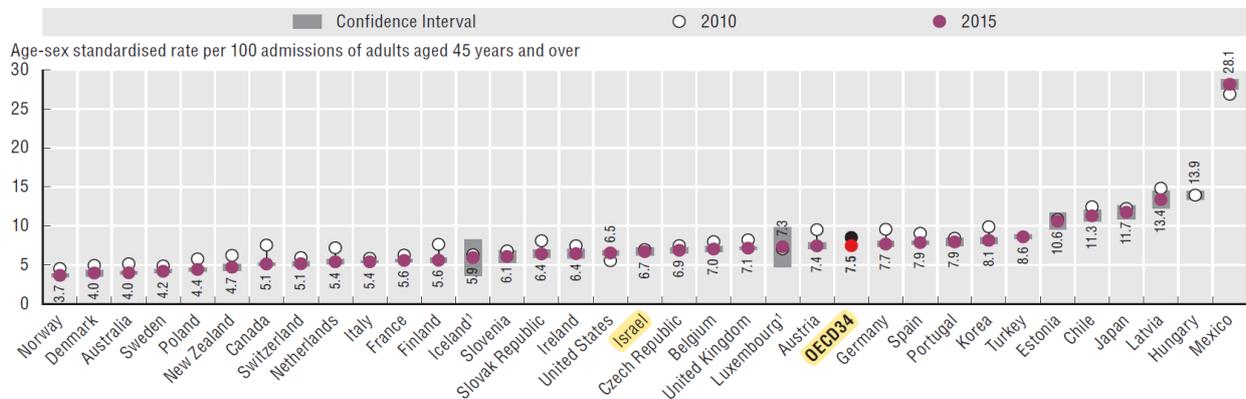
Age adjusted rates per 100,000 population

Source:

[https://www.health.gov.il/English/News\\_and\\_Events/Spokespersons\\_Messages/Pages/15082019\\_1.aspx](https://www.health.gov.il/English/News_and_Events/Spokespersons_Messages/Pages/15082019_1.aspx)

According to OECD data, mortality after admission to hospital for acute MI in Israel is lower than OECD average:

**6.17. Thirty-day mortality after admission to hospital for AMI based on unlinked data, 2010 and 2015 (or nearest years)**



Note: 95% confidence intervals have been calculated for all countries, represented by grey areas.  
 1. Three-year average.  
 Source: OECD Health Statistics 2017.

Source: [https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-2017/mortality-following-acute-myocardial-infarction-ami\\_health\\_glance-2017-34-en](https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-2017/mortality-following-acute-myocardial-infarction-ami_health_glance-2017-34-en)

**Acute Coronary Syndrome Israeli Survey (ACSIS)**, is a consecutive survey performed every 2-3 years, representing real world data collected from all the Cardiology Departments in Israel. The ACSIS represents data on of the characteristics, management and outcome of patients with acute coronary syndromes in Israel, and the information is used to improve the care of cardiac patients.

**Temporal Trends (2000-2016) of the Rates of Mortality and MACE after Acute Coronary Syndrome\***

Table 2.12: Rates of Mortality and MACE<sup>1</sup>

	2000	2002	2004	2006	2008	2010	2013	2016	p for trend
n	1793	2048	2094	2075	1746	1779	1885	1791	
<b>Mortality</b>									
On discharge (%)	5.2	3.5	3.2	2.8	2.5	2.1	2.0	1.7	<0.001
7-day	5.2	3.3	3.1	2.9	2.6	2.2	1.8	1.6	<0.001
30-day	8.6	5.5	5.5	4.6	4.4	4.2	3.7	3.0	<0.001
1 year	13.5	11.0	11.2	9.8	8.1	8.1	8.3	7.8	<0.001
<b>MACE<sup>1</sup></b>									
30-day	26.5	18.6	14.6	16.4	12.5	10.3	10.4	8.9	<0.001

<sup>1</sup> 30 day MACE: Death/UAP/MI-isch/CVA/St.thromb/Follow-up urg. revasc

\* according to the ACSIS surveys

Source: [https://www.health.gov.il/UnitsOffice/ICDC/Chronic\\_Diseases/Heart\\_diseases/Pages/ACSIS.aspx](https://www.health.gov.il/UnitsOffice/ICDC/Chronic_Diseases/Heart_diseases/Pages/ACSIS.aspx)

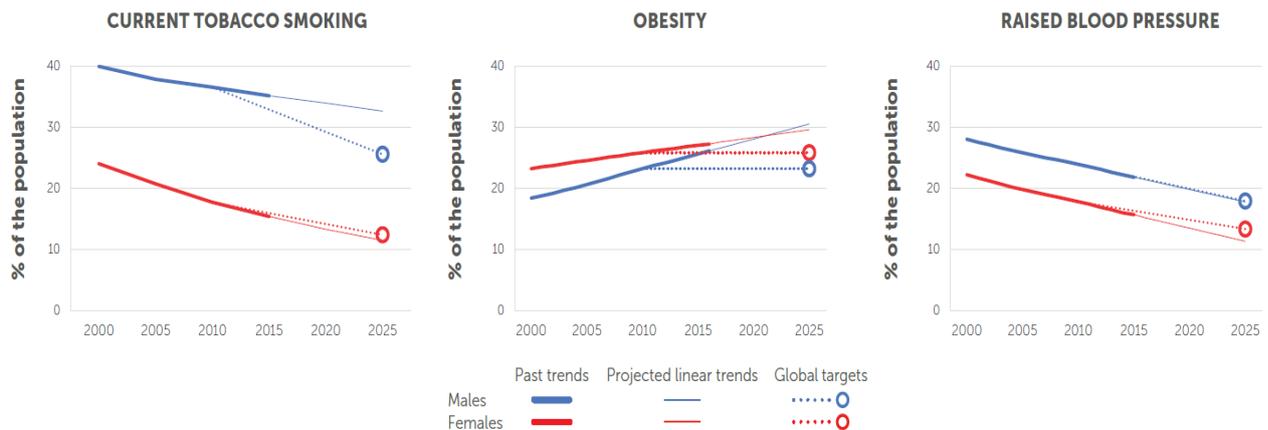
There are no accurate updated data from large population studies on the prevalence of CVD risk factors, but reasonable estimates can be deduced from small population studies as well as cumulative data from the HMO computerized records. Due to the large heterogeneity of the Israeli population, it is important to note differences among ethnic groups. For example, a higher prevalence of smoking, obesity and diabetes mellitus is found in the Arab and Bedouin population, leading to a higher CVD morality rate. A higher prevalence of diabetes is also found in several Jewish ethnic groups.

Reported %	Jewish women	Arabic women	Jewish men	Arabic men	Overall
<b>Obesity %</b>	31	52	23	25	25
<b>Type 2 diabetes %</b>					
➤ 18 years	5	12	7	13	6.4
➤ 55-64 years	13	37	15	23	17
<b>Smoking %</b>	14	4	25	45	20
<b>Hypertension (55-64)</b>	35	36	28	19	31
<b>Physical activity*</b>	29	18	36	22	32

\*At least 3 times/week, according to survey of activity lifestyle ICDC (Israeli centre for disease control) 2011-2012; Source: Yaakov Henkin.

## Metabolic Risk Factor Trends in ISRAEL

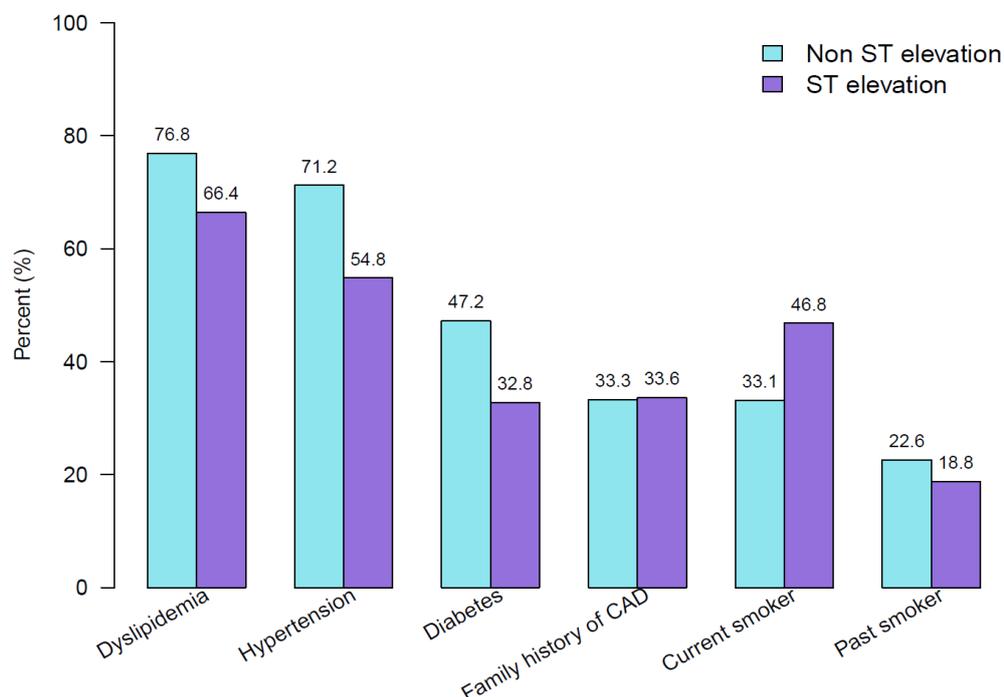
### SELECTED ADULT RISK FACTOR TRENDS



Source: World Health Organization NCD Country Profiles, 2018: Israel; [http://www.who.int/nmh/countries/isr\\_en.pdf](http://www.who.int/nmh/countries/isr_en.pdf) (English)

**Nutrition:** The Israeli cuisine is a mix of Arab native Mediterranean, Eastern European, Russian and North African foods and eating habits, mixed with modern fast food that enters heavily to the nutrition behaviour of the population. The intake of red meat is quite low while fruits and vegetable are popular. Surveys show a relatively low intake of saturated fat, fibre, alcohol, calcium and vitamin E and relatively high intake of sodium and vitamin C.

## Burden of Risk Factors in Patients Presenting with Acute Coronary Syndromes\*



\* according to ACSIS survey 2016

Source: [https://www.health.gov.il/UnitsOffice/ICDC/Chronic\\_Diseases/Heart\\_diseases/Pages/ACIS.aspx](https://www.health.gov.il/UnitsOffice/ICDC/Chronic_Diseases/Heart_diseases/Pages/ACIS.aspx)

## References

- <http://www.old.health.gov.il/pages/default.asp?maincat=2&catId=653> (Hebrew)
- <http://www.old.health.gov.il/Download/pages/Mortality2.pdf> (English / Hebrew)
- Israel bureau of statistics: Persons who Engage in Physical Activity at Least Three Times a Week  
[http://www1.cbs.gov.il/publications13/health\\_survey09\\_1500/pdf/t25\\_1.pdf](http://www1.cbs.gov.il/publications13/health_survey09_1500/pdf/t25_1.pdf) (English / Hebrew)
- Quality indicators statistics 2008-2010  
<http://healthindicators.ekmd.huji.ac.il/reports/Israel%20quality%20indicators%202008-2010%20English.pdf> (English)
- WHO country health profile <http://www.who.int/countries/isr/en/> (English)
- OECD Health Data 2010, October 2010, and International Diabetes Federation (IDF) <http://www.diabetesatlas.org/content/eur-data> (English)
- N Goldberger, Z Haklai. Mortality rates in Israel from causes amenable to health care, regional and international comparison. *Israel Journal of Health Policy Research* 2012, 1:41 <http://www.ijhpr.org/content/1/1/41> (English)
- Diabetes in Israel 2010  
[http://www.chemitec.co.il/images/stories/news/sukeret\\_in\\_israel.pdf](http://www.chemitec.co.il/images/stories/news/sukeret_in_israel.pdf) (Hebrew)
- Sofer M *et al.* Coronary Heart Disease and Metabolic Risk Factors in Israel: focus on gender and ethnicity. *Curr Cardiovasc Risk Rep*  
<http://link.springer.com/article/10.1007%2Fs12170-012-0242-4#page-1> (Engl.)

Country report Israel Oct 2013, Yaakov Henkin *et al.*  
(statistics update Oct 2019, Barak Zafrir)

II. Risk factor statistics

The content of this report reflects the personal opinion of the author/s and is not necessarily the official position of the European Society of Cardiology

12. Kalter-Leibovici Obesity among Arabs and Jews in Israel: A Population-Based Study. IMAJ 2007;9:525–530
13. Kalter-Leibovici Adult-onset diabetes among Arabs and Jews in Israel: a population-based study, Diabetic Medicine 2012;29, 748–754
14. Abu-Saad K *et al.* Jews and Arabs in the same region in Israel exhibit major differences in dietary patterns. J Nutr. 2012;142(12):2175-81.

### III. Prevention methods, staff

The majority of primary and secondary CV prevention is provided by primary care physicians, consisting mostly of family physicians and general practitioners, with some internists and pediatricians. Through multi-disciplinary clinics in almost every town and village throughout Israel, the HMOs provide comprehensive healthcare to all Israeli citizens. Since the majority of patients with CV disease are also routinely followed by HMO cardiologists, some prevention is also provided by cardiologists as well as sub-specialists in diabetes, lipids and hypertension in hospitals as well as the community. Cardiac rehabilitation centres exist in most large towns either in a hospital setting or in the community.

The major incentive for providing preventive cardiology services is driven by the existence of specific **quality indicators**. The latter are a set of well-defined, measurable parameters that were originally suggested by Ben-Gurion University researches, developed with the consensus of the four HMOs and the Israeli medical associations, and is currently coordinated by the Ministry of Health and the Hebrew university school of public health through the National Program for Quality Indicators in Community Healthcare in Israel (QICH). These measures are based on national and international medical guidelines, and cover six areas of healthcare - asthma, cancer screening, and immunizations for older adults, child health, cardiovascular health and diabetes. The performance of the HMOs in each of these quality indicators is published on a regular basis and provides policy makers and consumers with information on the quality of community healthcare in Israel. The 4 HMOs, as well as individual clinics within each HMO, compete amongst themselves on the performance in each of the QICH parameters.

Although no financial incentives are given, the comparative publication of performance provides a strong incentive for better achievement in preventive cardiology. Some examples of specific indicators and the national performance levels as of **2017** include: recording of updated smoking status (92%), blood pressure (82%-93% according to age), BMI (90%), cholesterol level (age 35-54 years: 88%, age 55-74 years: 76%, and 91% in diabetics) and glycosylated haemoglobin (HbA1C) in diabetics (91%).

After CABG or PCI, 82% of patients have used cholesterol lowering drugs, and 65% have achieved LDL cholesterol  $\leq 70$  mg/dL or used high-intensity statin. In patients with diabetes aged 18-80 years, 65% have LDL cholesterol  $< 100$  mg/dL. Of the diabetic patients, 70% have achieved their glucose-lowering treatment goal according to HbA1C levels ( $\leq 8\%$  in patients  $> 75$  years or with diabetes duration  $> 10$  years, and  $\leq 7\%$  in rest of diabetics).

Source: <https://www.israelhealthindicators.org/program?lang=en>

Since the QICH results are routinely published and made public, the HMOs regard their results as an indicator of excellence and routinely monitor the performance of each individual clinic. In order to reach every insured patient, whether or not they visit the clinic, the HMOs routinely provide the clinics with lists of individuals not at target level for each indicator. The clinics in turn operate in a team approach, with nurses and medical secretaries outreaching to the patients and performing most of the tasks except for

medicine prescription, which is the sole responsibility of the physician. Targeted populations (e.g. diabetics, hypertensives etc.) are also invited for focused educational sessions organised by individual clinics. The QICH has had a significance impact on the attitude and performance of risk-factor control in primary care [Jaffe *et al.* (17)].

The [European Guidelines on CVD Prevention in Clinical Practice](#) (19) provide the basis for the Israeli CVD prevention guidelines, which in turn guide the QICH indicators. Both the SCORE and the Framingham scoring systems are integrated within the computerised patient charts of most HMOs and provide the physician with the ability to guide therapy.

**Nutrition: In 2020**, a new legislation initiated by the Ministry of Health regarding nutritional profiling will be taken place. Manufactures and food importers will be committed to mark in red icon nutritional ingredients with high amount of sugar, sodium and saturated fat. This will allow the consumers to choose their food more wisely in order to promote their health. In addition, under the sign of sugar content, a marking with the equivalent number of sugar spoons will be added.

## References

15. Porath A *et al.* Quality Indicators for Community Health Care in Israel. [http://www.old.health.gov.il/Download/pages/public\\_report\\_English\\_2002-2004.pdf](http://www.old.health.gov.il/Download/pages/public_report_English_2002-2004.pdf) (English)
16. Manor O *et al.* National Program for Quality Indicators in Community Healthcare in Israel Report, 2008-2010. School of Public Health and Community Medicine, Hebrew University-Hadassah. Jerusalem, Israel, 2012. <http://healthindicators.ekmd.huji.ac.il/reports/Israel%20quality%20indicators%202008-2010%20English.pdf> (English)
17. Jaffe *et al.* Community healthcare in Israel: quality indicators 2007-2009 Israel Journal of Health Policy Research 2012, 1:3
18. Rosen B *et al.* Adherence to standards of care by health maintenance organizations in Israel and the USA. Int J Qual Health Care 2011;23:15-25.
19. Piepoli MF, *et al.* 2016 European Guidelines on cardiovascular disease prevention in clinical practice: The Sixth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice. Eur Heart J. 2016; 37(29):2315-2381.

## IV. Cardiac Rehabilitation

**Written by Dr Robert Klempfner – Director, Cardiac rehabilitation Center, Sheba Medical Center, Israel.**

Israel had embraced cardiac rehabilitation (CR) as early as the 1960s. Currently there are about 22 cardiac rehabilitation centres, most of which are hospital based and house both step 1 (in-hospital) and step 2+3 CR programs. Independent or private owned CR institutes are few, despite the fact that reimbursement for CR exists at a national level through the “health basket”, as previously described.

### CR coverage by national regulations (“the basket”):

Current accepted indications for the 3-month complete reimbursement by the HMO are:

- CR following acute MI, interventional PCI and/or cardiac surgery
- Heart failure NYHA 2-3 (but some centres do accept stable NYHA 4 and pre-transplant patients)
- Following CRT-D or ICD implantation

Patients are referred to CR by the discharging hospital, hospital-based clinics community cardiologists and primary care physicians.

### CR National Regulations and personal

The ministry of health has published acceptance criteria for CR. Major notable criteria include: Presence of trained physicians and nurses, full ACLS capabilities, and advanced telemetry and electronic medical records. The program needs to be directed by a board certified cardiologist and exercise prescription is jointly established by a physician with experience in CR and a physiologist (Usually MSc. in exercise physiology) or a certified physiotherapist with at least 6 months training in CR. Implementation of the exercise plan is carried out by physical education instructors (usually BSc.), under the supervision of the physiologist \ physiotherapist, nursing staff and physician. Additionally, CR centres offer free access to consultations by clinical dietician and some have added psychological consultations and support groups (i.e. heart failure support group lead by trained team of psychologist and cardiac nurse). Clinical guidelines and performance measures for CR activity have been published by the Israeli Heart Society. Guidelines for community physical activity for populations with risk factors or cardiac pathology have also been issued (2013). Exercise programs consist of a combination of aerobic (treadmill, bicycle, arm ergometer), resistance training. Some centres have added sessions of respiratory muscle training, Tai Chi and Yoga.

**In 2018**, the Ministry of health published a position paper on standard criteria for **Home-based CR**. The home-based CR is operated only by existing traditional CR centers and is intended for low-risk patients. It is anticipated that with the reimbursement for home-based CR, the role of telerehabilitation and remote monitoring will increase in CR in Israel, as will the utilization of CR services after an acute hospitalization.

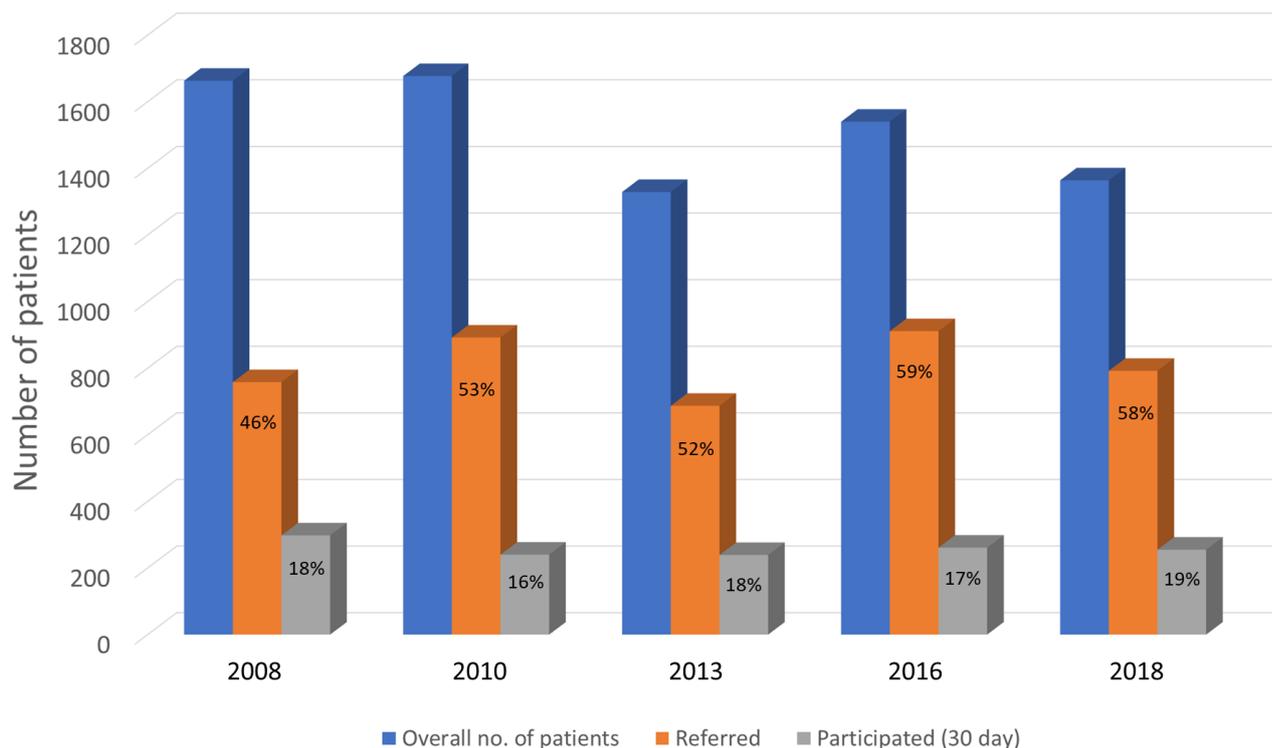
## Surveys and registries

### Referral rate trends 2008-2018

Results were obtained from the biannual national Acute Coronary Syndrome Israeli Survey (ACSIS); Obtained from Israeli cardiology departments during a 2-month survey, conducted every 2 years)

Source: data received from Prof. Robert Klempfner [ACSIS data]

### Referral Rates to Cardiac Rehabilitation according to ACSIS Survey Year\*



\* presented are the percentage of patients referred to CR after hospitalization with ACS and the 30-day participation rates (out of the total number of patients included in the survey). Overall, referral rates increased from ~50% to 60% over the years, while participation rates remained low. Significant variability in utilization of CR services exists across the country, according to the availability of CR facilities, which are significantly lower in number in the peripheral areas of the country.

### Future Directions:

- Although Israel is relatively small, accessibility of CR centres represents a barrier to more widespread penetration and impacts adherence. Home or small community CR is not routinely practiced and successful European models need to

- be explored and possibly adopted.
- The role of CR in heart failure patients with preserved systolic function is currently under investigation through a prospective national study
  - Educating physicians and medical students in the science of CR is lacking and needs improvement in order to increase awareness and expertise.
  - Currently CR is not part of the established quality indicators monitored by HMOs or the ministry of health. Adding CR and measuring referral rates is likely to improve attendance rates but possibly create a supply shortage as the number of centres is not likely to increase. Better financial incentives are likely part of the solution as an incentive for new private CR centres.
  - High-risk patients are less likely to attend CR although their benefit is generally substantial. Referral of these patients (CHF, renal dysfunction, post CVA, elderly women) needs to be encouraged.

**Reference:**

20. [http://www.emed.co.il/emed/new/usersite/presentations/acsis2006/acsis2010Finding\\_trends.pdf](http://www.emed.co.il/emed/new/usersite/presentations/acsis2006/acsis2010Finding_trends.pdf) (English)

**Relevant Websites:**

- <http://www.israel-heart.org.il/ראשי/לב-חולי-לשיקום-החוג/חוגים> (Hebrew)

**CR centres:**

- <http://heart.sheba.co.il/Rehabilitation/> (Hebrew)
- <http://www.tasmc.org.il/Internalmed/Cardiology/Pages/PreventiveCardiology.aspx> (Hebrew)
- <http://www.b-zion.org.il/pages/893.aspx> (Hebrew)
- <http://www.assafh.org/tv/Pages/Media2.aspx> (Hebrew)

## V. Main prevention activities

The majority of health promotion and CVD screening and preventive treatment occurs within the HMOs, who invest heavily in preventive cardiology programs as described above. In addition to screening and individual treatment of risk-factors, the HMOs provide free smoking-cessation workshops and telephone assistance (quit lines). The Ministry of Health recently launched a nationwide program to encourage physical activities and better nutrition in adults as well as in schools, and subsidizes workshops for weight-loss and diabetes control within the HMOs.

In previous years **the Israeli Heart Society (IHS)**, through its Prevention Committee, was active in community campaigns for preventing cardiovascular diseases. This included national as well as local "CVD awareness days", and educational activities. Although this activity has been less prominent in recent years, there is now an interest in renewing it in collaboration with various international organisations. The IHS offers lecturers and lecture templates in preventing cardiovascular diseases for schools and workplaces, but utilisation of these resources is less than optimal. A new program for educating school children in "healthy living" is currently being structured.

In addition to endorsing recent ESC guidelines on [CVD prevention](#) and [dyslipidemias](#), the IHS initiated and participated (in collaboration with other relevant societies) in writing the Israeli guidelines for preventive cardiology, physical activity, use of aspirin in primary prevention [in Hebrew only (21)] and preventive nutrition [in English (22)].

The **Israeli Forum for Preventing Cardiovascular Diseases** is a collaboration between the ministry of health, the 4 HMOs and the relevant medical societies and provides educational and medical screening projects in 35 workplaces, including follow-up of lifestyle and risk factor modification (financed by the workplace). They also provide health questionnaires and lifestyle recommendations on their website (23).

The international project "**Healthy Cities**" involves over 60 municipalities and organisations in Israel and encourages healthy lifestyle including the development of walking trails, cycling trails and gym centres. It also provides educational activities to adults and children in the areas of nutrition and active lifestyle.

The **4C (Computerised Community Cholesterol Control)** was a project originally developed at Ben-Gurion University in Beer Sheva for improving the treatment of dyslipidemia in secondary prevention. The program utilised a Computer-based Clinical Decision Support System to automatically screen the electronic databases of Clalit HMO in the Negev every 3 months and produce integrated data on clinical diagnoses, lipoprotein profiles and purchasing of lipid-lowering medications in patients with CVD. The program has now been adopted by the Clalit HMO and extended to all CVD risk factors in primary and secondary prevention, by providing automatic reminders and treatment recommendations every time the physician opens the patient's electronic chart.

Preventive cardiology is taught at different levels and depth in the 5 **medical schools** around Israel. For example, at the Ben-Gurion University of the Negev (24) in Beer-Sheva the 2nd year students undergo a full week of preventive cardiology and nutrition,

in which they undergo small-group workshops in healthy cooking and nutrition analysis, various relaxation techniques, physical activity for the handicapped, cardiac rehabilitation etc. They also prepare posters on the pathophysiology of atherosclerosis and the various risk-factors and interview patients with CVD and/or risk factors in cardiology, neurology, geriatrics and other departments. In later years they receive lectures on the treatment of diabetes, hypertension and dyslipidemia, and become acquainted with the [ESC CVD prevention guidelines](#). Updates in preventive cardiology are routinely provided in post-graduate CME courses for family physicians.

## References

21. <http://www.israel-heart.org.il/english> (guidelines in Hebrew only)
22. Eilat-Adar S *et al.* Nutritional Recommendations for Cardiovascular Disease Prevention. *Nutrients* **2013**, 5(9), 3646-3683.  
<http://www.mdpi.com/2072-6643/5/9/3646> (English)
23. <http://www.2life.co.il/> (Hebrew)
24. <http://in.bgu.ac.il/en/fohs/Pages/default.aspx> (English and Hebrew)
25. M Donchin *et al.* Implementation of the Healthy Cities' principles and strategies: an evaluation of the Israel Healthy Cities Network. *Health Promot. Int.* 2006;21:266-273  
<http://heapro.oxfordjournals.org/content/21/4/266.long> (English)
26. Gilutz *et al.* Computerized Community Cholesterol Control (4C): Meeting the Challenge of Secondary Prevention. *IMAJ* 2009;11:23–29  
<http://www.ima.org.il/FilesUpload/IMAJ/0/40/20420.pdf> (English)

## VI. The future

The OECD has ranked the Israeli healthcare system as the leading system in the community with special mention of the quality measures and improvement programs. Given the prevention programs of the HMOs and the significant reduction of CV mortality, one can conclude that the medical community is performing reasonably well in the identification and treatment of the major risk factors (smoking, lipids, hypertension and diabetes) on an individual level. The government, through its ministry of health, is also making progress in legislation and public awareness relating to smoking and obesity. However, there are still some areas that are not given sufficiently high priority and should be better handled:

### Needs and possibilities

- Combating obesity, diabetes and smoking in specific high-risk minority groups, such as Arabs and high-risk Jewish ethnic groups
- Outreaching young individuals (35-60-year olds) who are in the prime of their career and family development and infrequently visit their family physician
- Health education in children and young individuals
- Enhancing public programs and awareness for physical activity and improved nutrition, and enforcement of anti-smoking laws
- Increasing participation in cardiac rehabilitation programs, especially in minority groups
- Enhancing knowledge and attitude of medical students towards preventive cardiology

### Obstacles

- Obviously, financial constraints in this era of economic instability austerity, although less severe in Israel, are a major hurdle to investment by the government and pharmaceutical enterprises in public programs and education
- The health system in Israel is insufficiently financed and the quality of preventive services is challenged by the growing needs of an aging population and the modern technologies in healthcare. The availability of medical and paramedical personnel is declining, especially in primary care.
- Despite the legislation of relatively progressive anti-smoking laws, the enforcement of these laws is inadequate.
- There are few incentives and rewards for medical personal for engaging in prevention
- Cultural and language differences obstruct in improving the health of minority groups
- Finally, as a National Coordinator on behalf of the EACPR, I need the appropriate incentives to dedicate sufficient time and energy for these activities in light of numerous other competing clinical, educational and research activities.

### Plans for the coming year(s)

- Attempt to revive the interest of the IHS in preventive cardiology activities

- Attempt to organise a national conference, under the hospice of the IHS, to which representatives of all organisations involved in CVD prevention will present their activities and coordinate national activities in this area
- Enhance the use of risk calculators by primary care personnel for more logical application of prevention strategies
- Through the EACPR education sub-committee, develop a core-curriculum in preventive cardiology for European medical and nursing schools
- Preparation of a consensus document on the management of dyslipidaemias, which will be endorsed by all medical societies in Israel that are involved in the treatment of dyslipidemias.