## **Country report Israel - October 2013**



Report by Prof Yaakov Henkin, National CVD Prevention Coordinator for Israel, *et al.* Prepared for the EACPR "Country of the Month" initiative

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Health care | Risk factor statistics | Prevention methods | Cardiac Rehabilitation | Activities | Future

### 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 km², about the size of New Jersey) with desert conditions in the south, and snow-capped mountains in the north. The number of inhabitants is 8 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 Cooperation and Development (OECD) member, and its economy, based on the nominal gross domestic product, was the 43rd-largest in the world in 2012. 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 almost 82 years (84 years for women and 80 years for men) - two years above the OECD average of 80 years. Total health spending accounts for 7.5% of GDP in Israel, which is less than the average of 9.5% in OECD countries. Israel also ranks below the OECD average in terms of total health spending per person. Between 2000 and 2009, total health spending in Israel increased in real terms by 2.8% per year on average, a slower growth rate than the OECD average of 4.7%.

#### References:

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### 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 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).

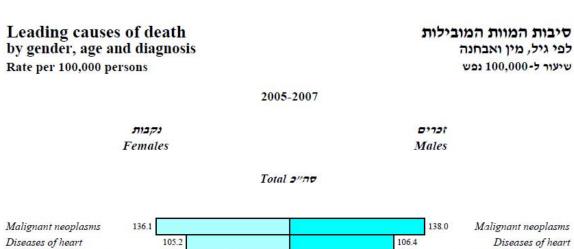
#### **Finances**

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 (3 additional months are covered by supplementary insurances).

### II. Risk factor statistics

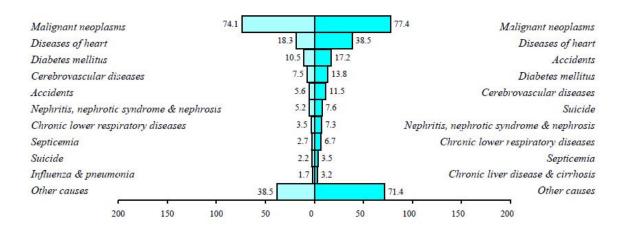
During the past decade, a significant drop has been found in mortality from heart disease in Israel. While in 2000 the 30-day mortality from MI in Israeli hospitals was 8.1%, the average in 2009 stood at only 4.1%. Heart disease mortality rates fell from 7.1% in 2000 to 4.5% in 2009. A drop was also recorded in mortality from stroke: The death rate at Israeli hospitals within 30 days after hospitalisation due to a stroke fell from 5.1% in 2000 to 3.5% in 2009.

Source: <a href="http://www.old.health.gov.il/Download/pages/Mortality2.pdf">http://www.old.health.gov.il/Download/pages/Mortality2.pdf</a> (English / Hebrew)



40.0 32.5 Cerebrovascular diseases Cerebrovascular diseases 36.4 32.0 Diabetes mellitus Diabetes mellitus Nephritis, nephrotic syndrome & nephrosis 22.5 26.2 Nephritis, nephrotic syndrome & nephrosis Chronic lower respiratory diseases 16.2 22.5 Accidents 17.7 Chronic lower respiratory diseases Septicemia 14.9 Accidents 13.3 11.7 Influenza & pneumonia 11.5 Influenza & pneumonia 12.7 Septicemia 10.6 79 Hypertension Suicide 144.9 150.2 Other causes Other causes 200 150 100 50 50 100 150 200

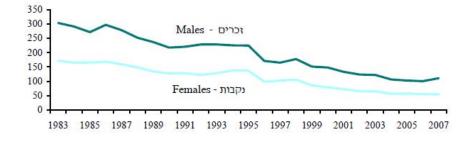
Age 1-74 51

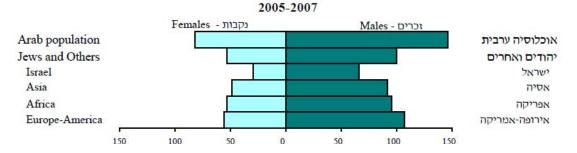


Ischemic heart diseases by gender, population group and continent of birth Age-adjusted rate per 100,000 persons מחלות לב איסכמיות לפי מין, קבוצת אוכלוסיה ויבשת לידה שיעור מתוקנן לגיל ל-100,000 נפש

Age 25+ גיל ICD-9-CM: 410-414, ICD-10: I20-I25

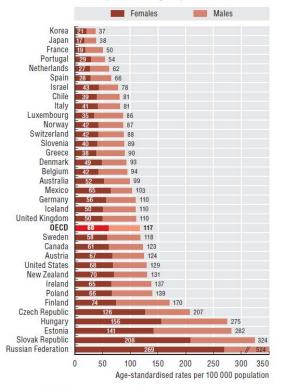
	2000	2001	2002	2003	2004	2005	2006	2007	
Males	5.5							32	זכרים
Total	148.2	133.0	123.7	122.0	106.4	102.6	100.2	110.8	סה"כ
Jews and Others	144.7	129.7	121.3	115.8	103.3	98.0	95.8	105.1	יהודים ואחרים
Israel	99.9	88.6	84.6	74.2	64.6	59.7	65.5	70.9	ישראל
Asia	133.6	124.8	110.0	104.1	102.3	92.1	92.9	89.2	אסיה
Africa	123.5	120.0	127.5	103.9	107.0	92.9	87.4	105.4	אפריקה
Europe-America	158.5	141.8	126.5	125.4	108.6	104.4	101.6	115.1	אירופה-אמריקה
Arab population	172.3	160.8	137.4	182.7	135.2	145.8	135.1	157.4	אוכלוסיה ערבית
Females									נקבות
Total	78.5	72.3	65.7	64.6	56.2	57.0	55.5	54.1	סה"כ
Jews and Others	75.8	69.3	63.4	61.4	54.3	54.8	52.0	52.8	יהודים ואחרים
Israel	39.4	33.5	35.0	28.0	30.8	25.7	31.7	30.9	ישראל
Asia	79.6	61.1	62.4	67.7	59.1	55.1	41.6	50.1	אסיה
Africa	71.6	73.9	70.3	68.0	53.9	50.9	54.8	53.4	אפריקה
Europe-America	79.3	72.9	63.3	60.6	54.6	57.4	54.9	54.2	אירופה-אמריקה
Arab population	112.5	109.0	89.4	107.6	80.6	79.8	98.4	67.9	אוכלוסיה ערבית





According to OECD data, mortality data from ischemic heart disease and stroke in Israel are relatively low compared to most other developed countries.

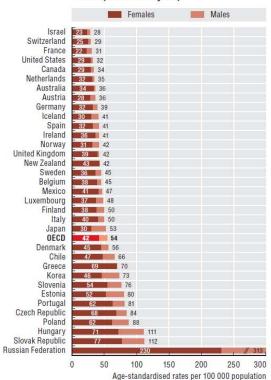
1.3.1 Ischemic heart disease, mortality rates, 2009 (or nearest year)



Source: OECD Health Data 2011; IS-GBE (2011).

StatLink | May = http://dx.doi.org/10.1787/888932523348

1.3.2 Stroke, mortality rates, 2009 (or nearest year)



Source: OECD Health Data 2011; IS-GBE (2011).

StatLink \*\*\* http://dx.doi.org/10.1787/888932523367

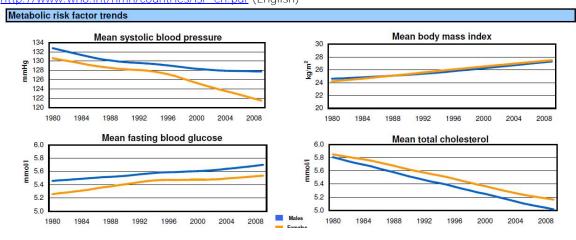
There are no accurate updated data from large population studies on the prevalence of CVD risk factors, but reasonable estimates can be deducted from small population studies as well as cumulative data from the HMO computerized records. Due to the large heterogeneity of the Israeli population, it is 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, such as those originating from Yemen, India and Ethiopia.

Source: Yaakov Henkin

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

<sup>\*</sup>At least 3 times/week, according to survey of activity lifestyle ICDC (Israeli centre for disease control) 2011-2012

Source: World Health Organization NCD Country Profiles, 2011: Israel; 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.

#### References

- 3. http://www.old.health.gov.il/pages/default.asp?maincat=2&catId=653 (Hebrew)
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- 5. 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 (English / Hebrew)
- 7. WHO country health profile <a href="http://www.who.int/countries/isr/en/">http://www.who.int/countries/isr/en/</a> (English)
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- 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 subspecialists 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 2010 include recording of updated smoking status (90%), blood pressure (86%), BMI (78%), LDL cholesterol level (77% in primary prevention, 84% in secondary prevention and 90% in diabetics) and HbA1C in diabetics (93%), achievement of target levels LDL cholesterol (91%) and glycosylated hemoglobin levels  $\leq$  7% (47%) and treatment with statins and ACE inhibitors in patients with CAD (84% and 67% respectively).

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)]. In a recent study performed at the Soroka Medical Centre in Beer Sheva (unpublished data) on over 2000 patients hospitalised with a first-time acute MI during the periods 1998-

2002 and 2008-2012, there was a significant increase in the proportion of patients who had a lipoprotein profile performed (32% to 80%, p < 0.001) and the proportion receiving statin treatment (25% to 37%, p < 0.001) prior to their hospitalisation. The average LDL cholesterol was significantly lower in the latter period (121 vs 140 mg/dl, p < 0.001) while the number of additional risk factors (diabetes, hypertension and smoking) significantly higher. This suggests that the patients admitted with a first MI during the latter period were higher-risk individuals who had been more often identified and treated for dyslipidemia as primary prevention.

The <u>European Guidelines on CVD Prevention in Clinical Practice</u> [as well as the American National Cholesterol Education Program (NCEP) guidelines (19)] provide the basis for the recently updated 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.

#### References

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#### IV. Cardiac Rehabilitation

# Written by Dr Robert Klempfner - Chairman of the Israeli working group for cardiac rehabilitation

Israel had embraced cardiac rehabilitation (CR) as early as the sixties. Currently there are 22 cardiac rehabilitation centres, most of which (14) are hospital based and house both step 1 (in-hospital) and step 2+3 CR programs. Independent or private owned CR institutes are relatively 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 AMI, interventional PCI and/or cardiac surgery
- Heart failure NYHA 2-3 (but some centres do accept stable NYHA 4 and pretransplant 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. Recently (2013), guidelines for community physical activity for populations with risk factors or cardiac pathology have been issued. 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.

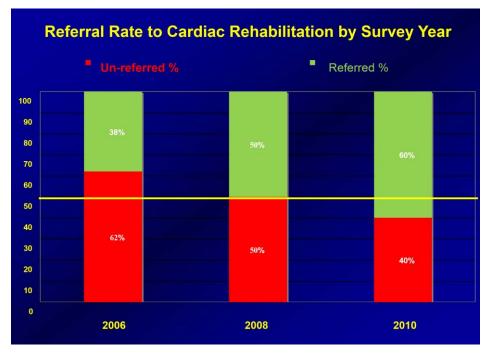
### **Surveys and registries**

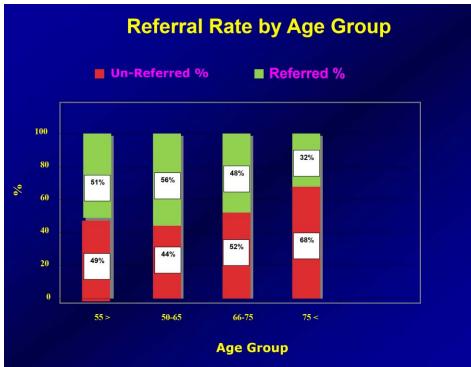
Currently the Israeli working group on CR has initiated a national registry for heart failure patients engaged in CR.

#### Referral rate trends 2006-2010

Results were obtained from the biannual national Acute Coronary Syndrome Israeli Survey (ACSIS N=4,129); Obtained from all Israeli cardiology departments during a 2-month survey, conducted every 2 years)

Source: created by Dr Robert Klempfner [from the ACSIS data (20); with permission from Prof. Goldenberg, director of the Israeli Association for Cardiovascular Trials]





#### **Future Directions:**

- Although Israel is relatively small, accessibility of CR centres represent 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.e-

med.co.il/emed/new/usersite/presentations/acsis2006/acsis2010Finding\_trends.p df (English)

#### **Relevant Websites:**

#### **CR centres:**

- <a href="http://heart.sheba.co.il/Rehabilitation/">http://heart.sheba.co.il/Rehabilitation/</a> (Hebrew)
- <a href="http://www.tasmc.org.il/Internalmed/Cardiology/Pages/PreventiveCardiology.aspx">http://www.tasmc.org.il/Internalmed/Cardiology/Pages/PreventiveCardiology.aspx</a> (Hebrew)
- <a href="http://www.b-zion.org.il/pages/893.aspx">http://www.b-zion.org.il/pages/893.aspx</a> (Hebrew)
- <a href="http://www.assafh.org/tv/Pages/Media2.aspx">http://www.assafh.org/tv/Pages/Media2.aspx</a> (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 <u>CVD prevention</u> and <u>dyslipidemias</u>, 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 <a href="ESC CVD prevention guidelines">ESC CVD prevention guidelines</a>. Updates in preventive cardiology are routinely provided in post-graduate CME courses for family physicians.

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### 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