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Noncommunicable diseases: challenges and strategic directions

Contents

Executive summary

Noncommunicable diseases such as cardiovascular diseases, diabetes, cancer and renal, genetic and respiratory diseases are rising significantly in the Eastern Mediterranean Region. Currently, 47% of the Region's disease burden is due to noncommunicable disease and it is expected that this burden will rise to 60% by 2020. Most of these diseases are the result of lifestyle behaviour as well as social and economic status. The modifiable risk factors smoking, unhealthy diet and physical inactivity, expressed as diabetes, obesity and high lipids, are the root causes of the global noncommunicable disease epidemic. Although the relative importance of these may vary among countries of the Region, these conventional risk factors may explain 75% of these chronic conditions.

The purpose of this paper is to review the regional burden of noncommunicable disease and noncommunicable disease risk factors; outline the impact and implications of noncommunicable disease on health at both national and regional levels; and outline strategies for prevention and control for the Region.

This paper emphasizes the importance of the overall reduction of major noncommunicable disease risks factors, and outlines appropriate and cost-effective measures. It highlights successful international and regional community-based initiatives, particularly in the area of primary prevention and care for noncommunicable disease and noncommunicable disease risk factors.

For the Eastern Mediterranean Region, there are a number of barriers that hamper the process of noncommunicable disease prevention and care, including: lack of reliable national epidemiological information; lack of appropriate and culturally oriented national noncommunicable disease strategies; and shortage of trained human resources and financial resources.

The key messages to Member States are to: develop and implement national integrated prevention and control programmes for noncommunicable disease; set national strategies that will raise community-awareness; encourage policy makers and health authorities to develop community-based programmes; ensure appropriate management of high-risk patients; and integrate in a comprehensive way the prevention and care of noncommunicable disease within the primary health care setting.

Recommendations are made with regard to prioritizing noncommunicable disease prevention and care on the national health agenda and developing an integrated and comprehensive approach to noncommunicable disease prevention and care.

1. Introduction

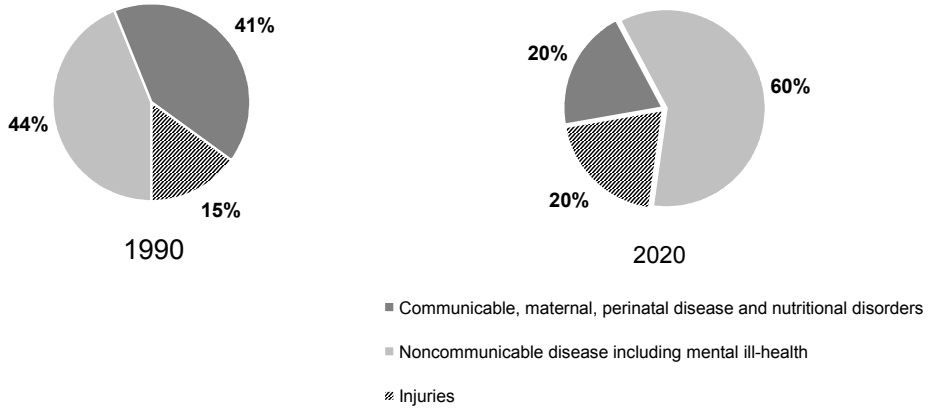
Prevention and care of noncommunicable diseases represent challenging regional and national tasks. In the Eastern Mediterranean Region, there are a number of barriers to progress in the process of noncommunicable disease prevention and care, including lack of reliable national epidemiological data, lack of well planned national strategies, and shortage of trained human resources and financial resources. This paper reviews the regional burden of noncommunicable diseases and analyses the evidence and regional health implications of noncommunicable diseases for the near future. It discusses the challenges and suggests appropriate strategic directions for prevention and care of noncommunicable diseases. Furthermore, it shows how reduction in incidence can be achieved cost-effectively through primary prevention and promotion of healthy lifestyles in the community.

The goal of this paper is to support countries in setting national policies and developing comprehensive and integrated national strategies for noncommunicable disease prevention and control, focusing on common risk factors, raising community awareness and participation, promoting development of community-based programmes and review of primary health care services to ensure integration of prevention and care of noncommunicable diseases at primary health care level.

2. Regional situation

Noncommunicable diseases such as cardiovascular diseases, diabetes, cancer and renal, genetic and respiratory diseases are rising significantly in the Eastern Mediterranean Region. Currently, 47% of the Region's disease burden is due to noncommunicable disease and it is expected that this burden will rise to 60% by 2020. The modifiable risk factors smoking, unhealthy diet and physical inactivity, expressed as diabetes, obesity and high lipids, are the root causes of the global noncommunicable disease epidemic. Although the relative importance of these may vary in different populations of the Region, these conventional risk factors may explain 75% of these chronic conditions [1–6].

Globally, noncommunicable diseases contribute 60% of deaths half of them attributable to cardiovascular diseases, and 43% of the global burden of disease. Already 79% of these noncommunicable diseases are occurring in developing countries. By 2020 noncommunicable diseases are expected to account for 73% all deaths and 60% of the disease burden (see Figure 1).



Source: [1]

Figure 1. Global burden of noncommunicable disease in 1990 and 2020

WHO groups countries into two groups: countries that have low child/low adult mortality (LC/LA countries); and countries with high child, high adult mortality (HC/HA countries). Table 1 shows the overall mortality in countries of the Region and mortality according to the two groups. In 2001, infectious and parasitic diseases contributed 24.4% of all deaths, 7.7% among LC/LA countries and 27.7% among HC/HA countries. Noncommunicable disease contributed 46% of deaths, 68% among LC/LA countries and 42% among HC/HA countries

Total disability-adjusted life years (DALYs) in 2001 in the Eastern Mediterranean Region were approximately 136 million, of which approximately 53 million (39%) were due to noncommunicable disease (Table 2). Total DALYs among LC/LA countries of the Region were approximately 23 million, of which noncommunicable disease contributed 58% (Figure 2).

Table 1. Mortality by cause, Eastern Mediterranean Region, 2002

	Mortality stratum		
	Low child Low adult	High child High adult	Total
Population (000)	141 835	351 256	493 091
Total deaths	707	3449	4156
Infectious and parasitic diseases	55	957	1012
	(7.7)%	(27.7)%	(24.4)%
Noncommunicable disease (total)	475	1454	1929
	(68%)	(42%)	(46%)
Cardiovascular disease	280	757	1037
	(59%)	(52%)	(54%)
Ischaemic heart disease	147	376	0523
	(31%)	(26%)	(27%)

Source: [1,5]

LC/LA= Bahrain, Jordan, Islamic Republic of Iran, Kuwait, Lebanon, Libyan Arab Jamahiriya, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Tunisia and United Arab Emirates

HC/HA= Afghanistan, Djibouti, Egypt, Iraq, Morocco, Pakistan, Somalia, Sudan and Yemen

Table 2. Burden of disease in DALYS by cause and mortality stratum, Eastern Mediterranean Region, 2002

	Mortality stratum		
	Low child Low adult	High child High adult	Total
Population (000)	141 835	351 256	493 091
Total DALYS	23 007	113 214	136 221
Communicable disease/maternal and prenatal conditions	5691	61 446	67 137
	(25%)	(54%)	(49%)
Infectious and parasitic disease	2227	32 514	34 741
	(9.6%)	(28.7%)	(25.5%)
Noncommunicable disease	13 282	39 329	52 611
	(58%)	(35%)	(39%)
Cardiovascular disease	2935	8855	11 790
	(22%)	(23%)	(22.4%)
Diabetes			

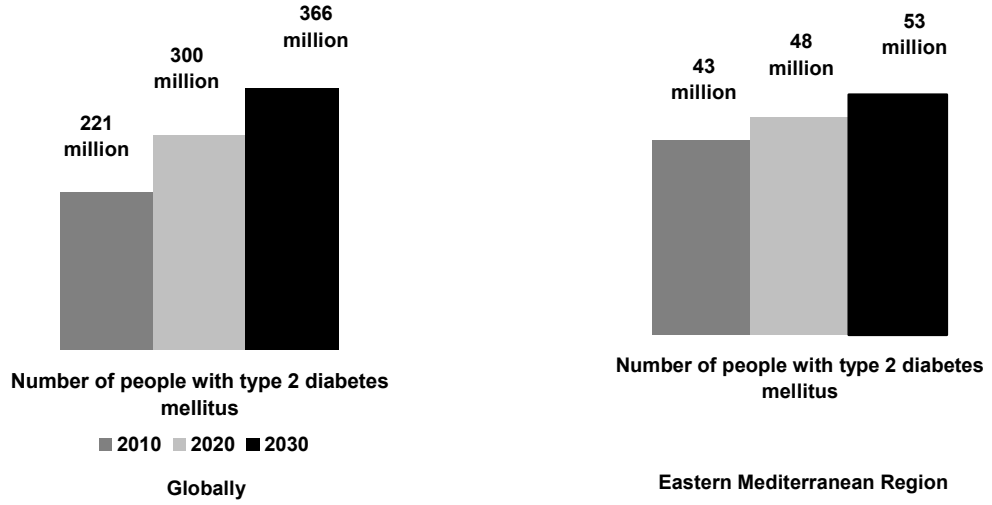
Source: [1,5,7]

Cardiovascular diseases and stroke in particular are rapidly growing problems, and are the major causes of illness and deaths in the Eastern Mediterranean Region, accounting for 31% of all deaths. They have major adverse health, social and economic effects within and beyond the health sector. The high prevalence of cardiovascular disease is due to ageing populations, high rates of smoking, changing nutritional and behavioural habits and increasingly sedentary lifestyles. With the adoption of modern lifestyles, there is likely to be greater exposure to risk factors such as high blood pressure, diets high in saturated fat leading to elevated serum cholesterol levels, and physical inactivity [2–6, 8–10] . Cardiovascular disease represented 54% of total deaths due to noncommunicable disease in 2002, 59% in LC/LA countries and 52% in HC/HA countries. Regional and national data show that cardiovascular diseases impose the highest morbidity burden among all noncommunicable diseases. The burden of cardiovascular disease expressed in DALYS (Table 2) is similar in both LC/LA and HC/HA countries, approximately 3 million (23%) in LC/LA countries and 8.8 million (23%) in HC/HA countries. This emphasizes the fact that HC/HA countries are suffering from a double burden of both communicable and noncommunicable disease.

The prevalence of hypertension in the Eastern Mediterranean Region is 26.5% among adults aged 20 years and above [2,8,10]. The main modifiable causes of high blood pressure are diet, especially high salt intake, low level of exercise and high prevalence of overweight and obesity.

The prevalence of diabetes mellitus ranges between 7% and 25% and is highest among member countries of the Gulf Cooperation Council (18%–25%) [2,3,11,12]. The regional adjusted mean for type 2 diabetes mellitus is 14.5%. Many countries of the Region are now reporting the onset of type 2 diabetes mellitus at an increasingly young age. Subjects are presenting with type 2 diabetes mellitus in third decade, and in some Member States, type 2 diabetes mellitus is emerging in children. This is attributed to the increasingly sedentary lifestyles and higher life expectancy, and rising prevalence of obesity, hypertension and cardiovascular disease. Countries of the Region need to anticipate the magnitude of the forthcoming diabetes–hypertension–obesity pandemic and to develop appropriate policy. Obesity is the main risk factor for type 2 diabetes and hypertension, and it is modifiable.

Figure 2 shows the projected global and regional prevalence of type 2 diabetes mellitus for 2010, 2020 and 2030. Every decade, 5 million cases of type 2 diabetes mellitus will be added to the total number of diabetics in countries of the Region.



Source: [13–22]

Figure 2. Expected global and regional prevalence of type 2 diabetes mellitus by 2010, 2020 and 2030

3. Risk factors for noncommunicable disease

Until recently, all noncommunicable disease risk factors (blood pressure, diabetes, dyslipidaemia, tobacco, physical inactivity and obesity) and the diseases linked to them were thought to be predominantly in industrialized countries. However, they are now becoming more prevalent in developing countries, often creating a double burden in addition to communicable diseases.

Risk factors in the Eastern Mediterranean Region reflect a risk-transition phase, showing marked changes in living patterns in many countries, particularly the Gulf Cooperation Council countries, where rapid increases in obesity are being recorded, particularly among children, adolescents and young adults. Overweight and obesity have risen two-fold or more since 1980. Changes in food production and types of food consumed have affected most countries of the Region. Tables 3 and 4 show the prevalence of noncommunicable disease risk factors among the adult population (≥ 20 years) and burden of disease for countries of the Region for selected noncommunicable diseases.

When considering the prevalence of multiple risk factors, it was found that those having 1, 2, 3, 4, 5 and 6 risk factors represented 60%, 50%, 40%, 30%, 20% and 8% respectively of the adult population aged 20 years and above (300 million people). This indicates that a sizable proportion of the population, 30 million, have four risk factors, 36 million have 5 risk factors and 24 million have 6 risk factors.

Table 3. Prevalence of selected noncommunicable disease risk factors in the Region among adult population, 2004

Risk factors	Regional adjusted mean (%)	Range (%)
Smoking	Males 40.6 Females 13	9–82 (among males)
Hypertension	26.5	7–48
Diabetes	14.5	3.4–36
Overweight/obesity	43	11–79
Dyslipidaemia (hypercholesterolaemia)	50	3.6–57
Physical inactivity	79	18–97

Source: [3,12]

Table 4. Burden of disease and prevalence (%) of risk factors (≥ 20 years)

Country	Population (000) 2004		Heart diseases 2002		Rheumatic heart disese	Stroke		Smoking		Diabetes		High blood pressure		Physical inactivity		Overweight (OW) and obesity (OB)		Cholesterol levels	
	Total	+20	No of deaths	DALY/ 1000 pop.	No. of deaths	No. of deaths	DALY/ 1000 pop.	M	F	M	F	M	F	M	F	M	F	M	F
Afghanistan	22 140	13 284	33 157	36	1938	11 523	13	82	17	–	–	–	–	–	–	–	–	–	–
Bahrain	689	413	283	8	6	84	3	30	16	24	36	25	38	–	–	56	79	–	–
Djibouti	751	451	727	21	27	248	7	75	10	–	–	–	–	–	–	–	–	–	–
Egypt	70 507	42 304	103 829	21	3398	35 054	8	48	12	8	7	26	26	80	95	44	41	–	–
Iran, Islamic Republic of	68 070	40 842	81 983	17	1138	31 768	8	33	05	10	11	17	15	46	95	57	68	51	57
Iraq	24 510	14 706	22 036	19	695	8291	8	40	5	6	6	–	–	–	–	–	–	–	–
Jordan	5480	3288	3788	13	127	1428	6	67	8	15	13	21	21	43	60	46	44	21	21
Kuwait	2484	1490	940	10	7	213	3	36	3	15	15	–	–	–	–	28/OB	30	17	9
Lebanon	3596	2588	5471	17	119	2072	7	61	47	15	10	31	18	63	71	60	53	55	56
Libyan Arab Jamahiriya	5484	3290	5309	15	130	1762	6	9	2	16	13	19	26	–	–	43	75	–	–
Morocco	30 088	18 053	29 934	14	808	1607	5	35	10	9	8	37	41	–	–	37	22	31	36
Oman	2968	1661	1765	17	12	375	4	24	3	12	11	27	9	18	97	41	42	–	–
Pakistan	149 030	8942	154 338	18	11 604	78 512	9	36	9	11	11	12	18	–	–	11	35	–	–
Palestine	3738	2243	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Qatar	616	3696	238	9	4	75	4	37	1	–	–	–	–	–	–	–	–	–	–
Saudi Arabia	23 520	14 112	16 438	17	126	3818	4	29	8	26	22	29	24	80	91	64	70	54	54
Somalia	9480	5688	6818	19	333	4426	13	–	–	–	–	–	–	–	–	–	–	–	–
Sudan	33 648	20 189	28 458	15	800	16 532	10	28	3	4	3	–	–	–	–	–	–	–	–
Syrian Arab Republic	17 765	10 659	11 168	13	1715	7675	11	48	9	23	18	30	26	–	–	53	59	–	–
Tunisia	9890	5934	12 956	15	298	4798	6	53	8	16	15	39	48	62	72	13/OB	42	–	20
United Arab Emirates	3754	2252	2235	17	16	363	4	28	4	22	19	10	7	65	–	26/OB	40	–	–
Yemen	19 495	11 697	16 217	22	743	6464	9	60	29	7	2	10	10	–	–	–	19	–	3.6

– Information not available

Source: [3]

4. Community-based noncommunicable disease interventions

4.1 International experience

Community-based programmes for prevention and control of cardiovascular disease started in Europe and the United States of America in the early 1970s; since then a vast amount of scientific literature has been accumulated. The results of several studies indicate that heart health programmes have a high degree of generalization, are cost-effective and can influence health policy. In the 1980s the focus of such programmes expanded from cardiovascular to noncommunicable disease in general, mainly because of the common risk factors. Theory and experience show that community-based noncommunicable disease programmes should be planned, run and evaluated according to clear principles and national priorities. Two examples may be cited, from Finland and the United Kingdom.

The North Karelia Project was launched in 1979 in Finland in response to local concerns to reduce exceptionally high mortality rates due to coronary heart disease in the area. In cooperation with local and national authorities and experts as well as with WHO, a large-scale community-based intervention was organized which included legislation banning tobacco advertising, introduction of low-fat dairy products and vegetable oil products, and incentives for communities with the greatest cholesterol reduction.

The 25-year result and experiences of the North Karelia Project show that a determined and well conceived intervention can have a major impact on promoting healthier lifestyles and on population risk-factor levels and that such a development, indeed, leads to reduced disease rates and improved health. By 1995, the annual mortality rate of heart disease in North Karelia in the working-age population had fallen approximately 75%, compared with the rate before the project (Table 5). The prevalence of high fat consumption fell from 70% to 10% among men, and from 60% to 10% among women, the mean total serum cholesterol fell by 16% in men. The intervention programmes continue to be carefully monitored, based on the changing community situation [23,24].

Between 1981 and 2000, coronary heart disease mortality rates decreased in the United Kingdom by 62% in men and 45% in women aged 35 to 84 years old. There were 68 230 fewer coronary heart disease deaths than expected from the baseline mortality rate in 1981. This was attributed to reduction in major risk factors, principally smoking, hypertension and hypercholesterolaemia [25]. While three risk factors which were not appropriately controlled (obesity, diabetes and physical inactivity) added 13% to mortality from coronary heart disease, success in reducing other modifiable risk factors contributed to a 71% reduction. The major impact was attributed to reduction in smoking (41% reduction in mortality), cholesterol levels (9% reduction) and population blood pressure (9% reduction).

Table 5. Mortality changes in North Karelia 1970–1995 (per 100 000 men 35–65 years, age adjusted)

	Rate in 1970	% change (1970–1995)
All causes	1509	– 49%
All cardiovascular diseases	855	– 68%
Coronary heart disease	672	– 73%
All cancers	271	– 44%
Lung cancer	147	– 71%

Source: [23,24]

4.2 Regional initiatives

Amman Declaration on Health Promotion

A consultation on islamic lifestyles and their impact on health development and human development in general, was held in Amman, Jordan, on 26 June 1989 with a view to achieving Health for All by the Year 2000.

The Consultation was convened in response to the urgent need in the Eastern Mediterranean Region for the formulation of health messages to its populations, in language that they can understand and respond to, and for the initiation of health promotion activities, making use of the devotional spirit that characterizes them, and that makes of the religion the authority to which they turn and the stimulus for their survival.

Based on the deep-rooted health heritage with which the people of the Region have contributed to human civilization, on the goal of WHO aiming at achieving Health for All, on the Alma-Ata Declaration on primary health care, and on the resolution by the World Health Assembly regarding the spiritual dimension, the Consultation issued the Amman Declaration on Health Promotion, the salient points of which are the following:

- Health is a blessing from God, which many people do not appreciate, as is mentioned in a saying of the Prophet.
- People can preserve their health, as enjoined in the Quran, by maintaining a moderate health balance in a state of dynamic equilibrium, neither exceeding the bounds, nor falling short in that balance.
- Every human being is in possession of a certain health potential, which they must develop in order to enjoy complete well-being and ward off disease, as is mentioned in the commentary of another saying of the Prophet.
- The lifestyles followed by human beings have a major impact on their health and well being.
- Islamic lifestyles embrace numerous positive patterns promoting health and rejecting any behaviour which is contradictory to health.
- Adhering to Islamic lifestyles is, in itself, a realization of the true nature of the human being, and ensures harmony with the laws of God in body and soul, in the individual, the family and community, and between human beings and their environment.

The document appended to the Declaration comprised a list of 60 Islamic lifestyles derived from the Quran and the Sunnah (sayings and deeds) of the Prophet, and affecting health development and human development in general. It comprises an integral part of this Declaration.

The Consultation called upon all international organizations, governments, voluntary and nongovernmental organizations to promote health by encouraging positive lifestyles, particularly through:

1. Introducing the health-promoting Islamic lifestyles, and advocating them through proper channels, as befits the circumstances of each country.
2. Providing conditions that are conducive to promotion of health and healthy lifestyles; and not contradicting such through advertising unhealthy lifestyles, supporting the production of materials harmful to health, or promoting unhealthy behaviour.
3. Reorienting health, educational, instructional and public information institutions, in such a manner that promotes health and encourages healthy lifestyles, especially those mentioned in the document appended to this Declaration.

Nizwa healthy lifestyles project, Oman

A baseline survey conducted in Nizwa, Oman, from April to June 2001 drew a worrisome picture of the prevalence of noncommunicable disease and associated risk factors. Among a sample of 1511 subjects aged 20 years and above, the data showed that the crude prevalence of diabetes was 9.3% (fasting) and 9.5% (2 hour post glucose load) in men and 8.1% and 9.8% respectively in women, which increased with age and decreased with levels of education and income. Twelve per cent of the study population had hypertension (16.2% for males and 8.5% for females). The prevalence of high cholesterol was 34%, and about 41% of the study population were overweight or obese. A large majority of the population remained undiagnosed for hypercholesterolaemia (96%) while for hypertension and diabetes the percentage of those undiagnosed was 69% and 60%, respectively. The smoking rate for males was 28%. Regarding physical activity, 39% of the total sample exercised during their leisure time (53% among males and 27% among females).

The Nizwa healthy lifestyle project is a community-based initiative where the community takes responsibility for their health and realizes the importance of living a healthy life. Different indicators will be used to assess the improvement in people's health. These include interruption of cigarette smoking, change in dietary habits and increasing awareness of physical fitness. There is a plan to monitor the progress of the interventions by conducting the same survey every five years [26].

Dar Al Fatwa Community-Based Intervention Project, Beirut, Lebanon

In 1997, a research study conducted in three communities in Lebanon, covering 2117 subjects aged 30 years and above indicated a high prevalence of cardiovascular disease risk factors. The community of Dar Al Fatwa was one of the three areas covered by that study and a total of 658 people were included. The prevalence of smoking, hypertension, obesity, diabetes, hypercholesterolemia and low high-density lipoprotein cholesterol (HDL-C) concentrations was: 38.4%, 12.3%, 61.6%, 18.1%, 30.4% and 43.5% respectively among males as compared to 27%, 12.1%, 81.6%, 16.7%, 33.9% and 17.6% respectively among females.

A plan was developed to reduce cardiovascular disease associated risk factors. The ultimate objective of this initiative is a reduction in the incidence and prevalence in cardiovascular disease (outcome objectives) [27].

Heart file-initiative, Pakistan

Noncommunicable diseases and injuries are among the top ten causes of mortality and morbidity in Pakistan; estimates indicate that they account for approximately 25% of the total deaths in the country. Existing population-based morbidity data on noncommunicable diseases in Pakistan show that one in three adults over the age of 45 years suffers from high blood pressure. The prevalence of diabetes is reported at 10%, while 40% of men and 12.5% of women use tobacco in one form or another [19].

In Pakistan, a public–private collaborative arrangement, led by the nongovernmental organization Heart-file in collaboration with the Federal Ministry of Health, Pakistan and the WHO office in Pakistan launched a partnership in April 2003 mandated with the task of developing and implementing a national strategy for achieving national goals for the prevention and control of noncommunicable diseases. This partnership is the first example of a truly 'national' plan of action with Government commitment to noncommunicable as a priority, and enlisting a broad range of inputs from within Pakistan. This initiative aims to reduce noncommunicable disease risk factors through community-based interventions [20].

Community-based care, Islamic Republic of Iran

The Islamic Republic of Iran has achieved good results through implementing innovative, community-based care throughout the country. The health policy of the country has been based on primary health care since 1979 with particular emphasis on the expansion of health networks and programmes in the rural areas [25,26]. Clear guidelines on diabetes and hypertension have been integrated into primary health care recently in many areas. In the past 15 years, life expectancy has increased by 13 years for males and 15 for females. Similarly, maternal and infant mortality rates have decreased to less than a

quarter of the prevalence rate 15 years ago. This is mainly attributed to participation of the community in prevention and care and increased coverage of primary health care to more than 94% in 2000, coverage having been very low in the early 1980s. These achievements have been made even in the presence of a demographic and epidemiological transition.

5. WHO response to challenges in noncommunicable disease

A regional strategy for diabetes was established at the Regional Consultation on Diabetes Prevention and Control in 2003 [28] and distributed to the Regional Committee at its 50th session in 2003. The strategy advocated an integrated approach to prevention and care of diabetes, emphasizing political commitment for advocacy, promotion of healthy lifestyles, raising community awareness, primary prevention and screening, development of national strategy and integration with primary health care. The National Centre for Diabetes Endocrinology and Genetics, a WHO Collaborating Centre in Jordan will start regional training courses for professionals and paramedicals on diabetes prevention and control, and separate courses for health educators specializing in patient diabetes education, by October 2005.

Regional guidelines on prevention, management and care of diabetes, management of hypertension, management of breast cancer and early detection and screening of breast cancer have been developed. Adoption and implementation for the regional guidelines is a major challenge and WHO will provide technical support to address this challenge through national workshops and national policy-setting for adaptation and adoption of the guidelines at the primary health care level.

6. Strategic directions

In the Eastern Mediterranean Region, noncommunicable diseases are the major cause of premature adult deaths, representing a major health challenge. Noncommunicable disease can be prevented and controlled by using available knowledge. However, without national strategic action, deaths from noncommunicable diseases are expected to increase by 17% from 2005 to 2015. There are several problems facing countries of the Region: lack of national risk factor surveillance; lack of harmonization of monitoring and surveillance methodologies; no linking of mortality data to noncommunicable disease prevention and control; lack of availability of a model of integrated care for noncommunicable disease prevention programme; and inadequate national capacity-building and lack of programme sustainability.

Three main strategic directions are advocated.

1) Estimate population need and advocate for action

There is a relatively long time between exposure to a risk factor and development of a noncommunicable disease. Consequently, the most effective strategy for surveillance is to focus efforts on the major noncommunicable disease risk factors that predict disease. Information on the population distribution of these risk factors is the key information required by countries in their planning of prevention and control programmes. It can also contribute to the monitoring and evaluation of these activities

Many countries of the Region do not have a surveillance system for chronic diseases. Knowledge of noncommunicable disease risk factors is important for predicting the burden of chronic disease in populations and for identifying potential interventions to reduce such burdens [1]. The World Health Report 2002 identified eight risk factors that contribute the most to mortality and morbidity, can be changed through primary intervention and can be easily measured in populations. They are tobacco, alcohol use, physical inactivity, low fruit/vegetable intake, obesity, raised blood pressure, raised cholesterol and diabetes. In fact the joint effects of tobacco, raised blood pressure and raised cholesterol account for 65% of all cardiovascular disease in those above the age of 30 years.

In the STEPwise approach, WHO recommends three steps to implement effectively the approach to noncommunicable disease surveillance. This is based on a conceptual framework that offers a distinction between different levels of assessment of risk factor, i.e by questionnaires, physical assessments and blood samples. This requires national authorities to develop or strengthen the national

surveillance system for noncommunicable diseases and risk factors. Once population need is estimated, the information must be synthesized into advocacy for policy action at national level.

2) Develop national policies, strategies and plans for noncommunicable disease prevention and care and capacity-building

As noncommunicable disease can be prevented and controlled using available knowledge, a comprehensive and integrated approach is required at country level, led by the government, and with the full participation of the whole community. The population-wide approach seeks to reduce the risks in the entire population. Noncommunicable disease can be reduced by small reductions in the average population levels of several risk factors, such as tobacco consumption, unhealthy diet and physical inactivity, which in turn lead to population-level risk reductions in cholesterol, blood pressure, blood glucose and body weight. Population-wide and individual approaches are complementary strategies that provide a continuum of interventions. Countries of the Region need to set strategies for developing a model of integrated care for noncommunicable disease prevention and national capacity-building.

There are four approaches to prevention: clinical prevention, health protection, health promotion, and health public policy [29,30].

Clinical prevention: interventions involving a health care provider and a recipient of care. Clinical prevention services are provided to individuals who may accept or decline the service or the recommended health actions. A physician counselling individual patients to quit smoking is an example of a clinical activity.

Health protection: interventions that reduce health risks by changing the physical or social environment in which people live. Prohibiting smoking in public places is an example of a health protection intervention.

Health promotion: interventions that aim at encouraging individual behaviours believed to produce positive health aspects and discouraging behaviour that produces negative health effects. Health promotion interventions frequently take the form of public information campaigns. A media-based antismoking campaign is an example of health promotion; taxation on tobacco products to reduce use are another.

Health public policy: social or economic interventions that affect health but do not have health as the main policy objective.

Preventive strategies need to focus on the population as a whole, or on the people identified as being at high risk of certain diseases. Thus it is important to integrate a comprehensive approach to noncommunicable disease at the primary care level. Primary care physicians, at all levels, need to integrate both preventive and promotive aspects into their practice. The comprehensive approach entails providing, curative, preventive and rehabilitative care, active involvement of the patients, their families and the community. Primary health care physicians must also play their part in providing education in healthy living. Health care workers are thus role models, and leaders in all matters that influence health.

3) Promote and implement community participation in prevention and care of noncommunicable disease

Integrated community-based intervention programmes for prevention and care of noncommunicable disease are comprehensive packages in which different kinds of activities are combined to produce synergetic effect. The community approach in noncommunicable diseases prevention has a high degree of generalization and cost-effectiveness, is able to diffuse information successfully, and has potential for influencing environmental and institutional policies that have a bearing on health status of the population. Close collaboration between those implementing the community approach and the national health authorities is important to sustain the programme and for influencing policy development in regard to health.

7. Conclusion

The need for a comprehensive vision to address the health and economic burden of noncommunicable disease in the Eastern Mediterranean Region is clear and urgent. The current burden of regional noncommunicable disease is a reflection of exposure to the main risk factors. The future burden will be determined by conducting reliable epidemiological population studies of the major risk factors. Regional and national strategies are essential for community mobilization and for developing and implementing successful and sustainable noncommunicable disease prevention and control policies and programmes.

Experience from the Region has shown that community-based approach is feasible and that prevention of noncommunicable disease and noncommunicable disease risk factors can be successful through joint collaborative efforts and coalition between health providers and the community. Population-wide interventions that seek to reduce risk factors in the entire population are needed. There is strong evidence that the policies, strategies and plans for noncommunicable disease prevention and control should be comprehensive and integrated, focusing on common risk factors.

Prevention and care of noncommunicable diseases represent a challenging task, nationally and regionally. Advocacy is needed to raise awareness of noncommunicable disease and create a climate for resource mobilization. Two key messages for advocacy are: a) noncommunicable diseases are the major disease burden; b) noncommunicable diseases are preventable by using available knowledge, and the solutions are effective and highly cost-effective. Research is needed to explore the effectiveness of community-based programmes for noncommunicable disease prevention and control. The aim is to gather solid evidence on the effectiveness of community-based programmes for noncommunicable disease prevention, in the Region and for each country specifically. Community-based programmes need to be oriented appropriately in regard to regional cultures. National capacity-building is crucial to meeting national needs in tackling the noncommunicable disease and their determinants in the population.

As regional average hypertension prevalence is 26.5% and diabetes prevalence is 14.5%, these two diseases represent a particularly important challenge to the Region which requires early attention within the overall context of noncommunicable diseases.

8. Recommendations

Member states

1. Prioritize noncommunicable disease in general, and hypertension and diabetes in particular, on the national health agenda.
2. Develop and strengthen comprehensive and integrated national policies, strategies and plans based on evidence for development of effective interventions for noncommunicable disease prevention and control and focusing on common risk factors and community participation.
3. Develop national strategies for advocacy, research and capacity-building in noncommunicable disease prevention and care.
4. Develop and strengthen national surveillance systems for noncommunicable disease and noncommunicable disease risk factors.
5. Integrate, in general, noncommunicable disease prevention and control, and in particular hypertension and diabetes, into primary health care.
6. Train primary health care staff, leaders and health services leaders in the area of prevention.
7. Apply and disseminate intervention knowledge and skills, experience gained from successful programmes in demonstration areas and continue sharing of experience gained through community-based programmes with other Member States.
8. Conduct studies on the health and economic burden of noncommunicable disease.

Regional Office

9. Continue to provide technical support to Member States to develop comprehensive integrated policies strategies and plans for noncommunicable disease prevention and care, in particular hypertension and diabetes, and adapt and implement the regional guidelines on diabetes and hypertension prevention and care.
10. Support Member States to establish and strengthen STEPWise Surveillance systems for noncommunicable disease and noncommunicable disease risk factors.
11. Collate and disseminate existing knowledge, evidence and experience on successful community-based programmes through the Eastern Mediterranean Approach to Noncommunicable disease (EMAN) network.
12. Promote applied research on the economic burden of noncommunicable disease in the Eastern Mediterranean Region.

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