HEALTH PROMOTION AND DISEASE PREVENTION **A Handbook for Teachers, Researchers, Health Professionals and Decision Makers**	
Title	**Health Promotion in Prevention of Non-communicable Diseases**
Module: 5.2	**ECTS: 0.75**
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Key words	Health, health promotion, health education, non-communicable diseases, intersectoral cooperation, healthy lifestyles
Learning objectives	After the completed module students and professionals in public health will broaden their knowledge and understanding in respect to: • role of health education in promotion of health and prevention of non-communicable diseases; • recognizing the role of all players (participants) in health education activities in a network of multisectoral co-operation and integrated interventions;

Abstract	A number of internationally recognized studies directed to prevention of the leading non-communicable diseases (NCD) showed evidence of enormous importance of precise defined priorities (population groups and diseases), community based measures of prevention and health intervention organizational and network promotive activities including media involvement and support. Promotion of healthy lifestyles and elimination of the common risk factors for NCD should be considered as high priority in the broad scope of measures of health care. Integrated programs for preventive health care of chronic non-communicable diseases directed to life style changes, scientific work with monitoring and evaluation, creating supportive environments, multi-sectoral approach in solving health problems and inter-sectoral cooperation within the community with active involvement and participation of the population and developing personal skills are summarizing all principles of organization, integration and overall activities of health care services within the contemporary health care systems.
Teaching methods	Lectures, focus group discussion, nominal groups, case studies
Specific recommendations for teachers	The following teaching methods are recommended: -lectures, -focus group discussion, -case studies on risk factors for non-communicable diseases, -individual work, consult literature, written reports, preparation of project, preparation of poster participation in realization of health education activities directed to prevention of non-communicable diseases.
Assessment of Students	The final mark should be derived from assessment of the theoretical knowledge (oral exam), contribution to the group work and final discussion, and quality of the seminar paper

HEALTH PROMOTION IN PREVENTION OF NON-COMMUNICABLE DISEASES

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Introduction

The greatest disease burden in Europe comes from non-communicable diseases (NCD), a group of conditions that includes cardiovascular disease, cancer, mental health problems, diabetes mellitus, chronic respiratory disease and musculoskeletal conditions. No less than 86% of deaths and 77% of the disease burden in the WHO European Region are caused by this broad group of disorders (1). This broad group of diseases is linked by common risk factors, underlying determinants and opportunities for intervention.

Gaining better health for the people of Europe is achievable. It is possible to significantly reduce the burden of premature death, disease and disability in Europe through comprehensive action on the leading causes and conditions. Investing in prevention and improved control of NCD would improve the quality of life and well-being of people, communities and societies.

NCD have a *multifactorial etiology* and result from complex interactions between individuals and their environment, including their opportunities for promoting health and countering their vulnerability to risks. *Individual characteristics* (such as sex, ethnicity, genetic predisposition) and health protective factors (such as emotional resilience), together with social, economic and environmental determinants (such as income, education, living and working conditions), determine differences in exposure and vulnerability of individuals to health-compromising conditions. These underlying determinants, or "causes of causes", influence health opportunities, health-seeking and lifestyle behaviour as well as onset, expression and outcome of disease. A person's genetic make-up is likely to be important in the probability of developing certain diseases, such as diabetes, cardiovascular disease, cancers, schizophrenia and Alzheimer's disease. Although patterns of inheritance are not clear-cut, gene-environment interactions may play a major role (1).

Dying young or living with long-term illness or disability has economic implications for families and society. Employers and society carry a burden of absenteeism, decreased productivity, and employee turnover. Families and society carry a burden of health care costs (direct and indirect), reduced income, early retirement and increased reliance on social care and welfare support.

Health promotion and the prevention of NCD have a relatively small share of the health system budget in most of the European countries. According to the Organisation for Economic Co-operation and Development (OECD), on average only 3% of total health expenditure in OECD countries goes toward population-wide prevention and public health programmes, while most of the spending is focused on "sick care."

Effective interventions already exist for the prevention and control of NCD. It is already possible to: improve the life style, prevent or modify risk factors; prevent the onset or progression of disease; prevent disability; and prevent early or painful death. Health outcomes can be improved by early detection, appropriate treatment and effective rehabilitation.

Cardiovascular disease (CVD) is the number 1 killer in Europe, causing more than half (52%) of all deaths across the Region, with heart disease or stroke the leading cause of death

in all 52 Member States (1,2). High blood pressure is one of the leading risk factors for coronary heart disease (CHD) and stroke, with prevalence of 15-30% of adult population having blood pressure 160/95 mmHg or higher.

The greatest potential for gain lies with prevention. Taking the example of CHD, altogether 80% of the reduction in CHD mortality in Finland during 1972–1992 has been explained by a decline in the major risk factors. Similarly, in Ireland, almost half (48.1%) of the reduction in CHD mortality rates during 1985–2000 among those aged 25–84 years has been attributed to favourable trends in population risk factors. In both countries, the greatest benefits appear to have come from reductions in mean cholesterol concentrations (from 6.9 to 5.8mmol/l, smoking prevalence (from over 50% to about 30%) and the diastolic blood pressure levels for about 8%.

Malignant neoplasms (cancer) have growing trend in all parts of the world, which mainly relate to the ageing of the population and an increase of the cancerogenic risk factors, especially tobacco smoking, much more widespread in developing countries. Each year about 15 billion in total, and 7 billion new cases of cancer have been registered in the world, a half of them in developing countries. The number of deaths caused by cancer in the world is about 5 billion per year. It means that treatment and cure are limited for most of the cases (60% in developed and much more in developing countries), especially in cases when the cancer has been diagnosed too late. About 70% of all malignancies are connected with the life style and the environmental risk factors, and at least one third of them might be prevented. Lung cancer is one of the most frequent malignancies, with upward trend in men and women, and with strong correlation with the number of smokers in the population and the intensity of smoking (number of cigarettes smoked per day). Lung cancer is the most common cause of death for adult male population in the European Region (1,2).

There is a major gap in implementing cancer related effective interventions. For example, 30 000 women die each year from cervical cancer in Europe, with death rates between two and four times higher in countries of central and eastern Europe than in western Europe: these deaths could be largely prevented through early detection and treatment. It is effective to screen individuals for early detection of breast (mammography) and cervical cancer (Pap-test) in women and colorectal and prostate cancer (digital examination of rectum and prostate) in men, particularly if this takes place through organized, population-wide screening programmes. It is very important to motivate people to cooperate and accept those procedures, either during their visits to health institutions or within the population-based organized screening.

Chronic respiratory diseases (CRD) are very common diseases (chronic bronchitis, emphysema, asthma and chronic obstructive pulmonary disease) with prevalence of 300-600 billions or 8-20% within the world population. CRD are cause of death for almost 3 billion people per year in the world. Cigarette smoking is the main risk factor for CRD, as well as air pollution.

Diabetes mellitus upward trend relate to urbanization and ageing of the population worldwide. It is estimated that the number of adult population with diabetes in the world is almost 60 billion. The prevalence of diabetes in Europe is from 2-5% of adult population, and in USA about 20% of elderly population. Patterns of disease differ by ethnic groups: type

2 diabetes mellitus is up to six times more common in people of South Asian descent and up to three times more common among those of African (Fiji, Mauritius, South Africa) and African-Caribbean origin, for instance.

The main risk factors for diabetes are obesity, inappropriate nutrition and insufficient physical activity, which means it belongs to the group of preventable diseases. Fifty per cent of people with diabetes mellitus may be unidentified; in those that are, 50% of patients may have unsatisfactory metabolic, lipid and blood pressure control, even though it is known that up to 80% of people with diabetes will die of cardiovascular disease.

Mental and neurological disorders belonging to the group of NCD, too. The number of people suffering from these diseases in the world is about 300 billions. Within the group of NCD might be included ***injuries and violence***, with big number of handicapped persons, deaths and suicides, as well as ***dental and oral health disorders.***

Risk Factors Related to Non-communicable Diseases

Almost 60% of the disease burden in Europe, as measured by DALYs, is accounted for by seven leading risk factors: 1) high blood pressure (12.8%); 2) tobacco (12.3%); 3) alcohol (10.1%); 4) high blood cholesterol (8.7%); 5) overweight (7.8%); 6) low fruit and vegetable intake (4.4%); and 7) physical inactivity (3.5%). It should also be recognised that diabetes is a major risk factor and trigger for cardiovascular diseases. In 37 of the 52 European Member States of WHO, the leading risk factor for deaths is high blood pressure; in 31 Member States, tobacco is the leading risk factor for disease burden. Alcohol is the leading risk factor for both disability and death among young people in Europe (1).

These leading risk factors are common to many of the leading conditions in Europe. Each of these seven leading risk factors, for instance, is associated with at least two of the leading conditions and, in return, each of the leading conditions is associated with two or more risk factors. Furthermore, in many individuals, particularly the socially disadvantaged, risk factors frequently cluster and interact, often multiplicatively.

Diseases also cluster in individuals, so that several co-morbidities can exist at once. At least 35% of men over 60 years of age have been found to have 2 or more chronic conditions and the number of co-morbidities increases progressively with age, with higher levels among women. There are strong interrelationships between physical and mental health, with both related through common determinants such as poor housing, poor nutrition, or poor education, or common risk factors such as alcohol.

Poverty

There is an uneven distribution of chronic conditions and related risk factors throughout the population, with higher concentration among the poor and vulnerable population groups. People in low socioeconomic groups have at least twice the risk of serious illness and premature death as those in high socioeconomic groups (3).

Inequalities in health between people with higher and lower educational level, occupational class and income level have been found in all European countries where measured. The increasing concentration of risk factors in the lower socioeconomic groups is leading to a widening gap in future health outcomes.

When improvements to health do occur, the benefits are unevenly distributed within society, with few exceptions. When all groups in society are exposed to some extent to health

interventions, those in higher socioeconomic groups have tend to respond better and benefit more. Mortality rates are declining proportionally faster in the higher than lower socioeconomic groups, particularly for CVD, widening further the differences in life expectancy between the two groups. Treatment may not be accessible, available or affordable, and the burden of costs can push families further into poverty.

Given the cluster of co-morbidities among the poor, and the potential number of drugs needed for effective treatment, it is no wonder that adherence to long-term therapy can be a challenge. Further, stigma and discrimination associated with certain diseases such as diabetes and mental health problems can close employment opportunities for some and further compound the interrelationship between poverty and ill-health.

International Health Promotion and NCD prevention and control movement

Health promotion began to gain acceptance worldwide after the launching of the Ottawa Charter for Health Promotion at the first international health promotion conference held in Ottawa, Canada 1986. The Charter was based on the Health for All Strategy, the Alma Ata Declaration and inspired by the Canadian Health Minister Marc Lalonde's 'health field concept'. It introduced a focus on health and its determinants into a debate that so far was dominated by a biomedical approach to health.

The Charter proposed a revolutionary shift in perspective that underlined the contribution of other policy sectors in health creation as well as the central role of individuals and communities in contributing to health. Health promotion was defined in the Charter as a 'process of enabling people to increase control over, and to improve their health'.

The process of the Ottawa Charter was scientifically facilitated by a document on concept and principles and an intensive debate before and at the conference from which emerged the five action areas of the Ottawa Charter (4):

- Build healthy public policy
- Create supportive environments for health
- Strengthen community action
- Develop personal skills
- Reorient health services.

In doing so, it brought together both existing and new ideas in one document, and gave them currency and status by being part of the WHO movement towards health for all. It proposed a salutogenic view on health which focuses on strengthening peoples' health potential and which is aimed at whole populations over the life-course. It underlined that all people have their individual health potential, even if living with severe disease or disability. It reinforced the directions set by the Health for All Strategy to view the goal of health policy and health programmes as *"providing people with the opportunity to lead a socially and economically productive life",* as well as by the statement in the preamble of the WHO Constitution - *"The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition."*

Since the adoption of the Ottawa Charter, health promotion has become a leading and vital component of modern public health and at the beginning of the 21st century it is a major concern of both developing and developed countries. It engages local communities, politicians, decision makers, lay people, popular movements and voluntary organizations,

business and numerous other actors. Twenty years after the adoption of the Ottawa Charter its basic values, principles and strategic action proposals remain valid.

While both developing and developed countries are facing a growing proportion of elderly and a population with more chronic conditions and non-communicable diseases, many developing countries are in addition still faced with infectious diseases, and increasingly injuries and violence as their economies grows. Changing living conditions and lifestyle bring more stress and thus a threat to mental health of those in both developed and developing countries alike. Billions of people are also undernourished and starving, causing millions of premature deaths and avoidable suffering. The story could be continued. In almost all cases children and young people are the prime losers. Much stronger efforts to promote health must be made for and by developing countries.

There is overwhelming evidence showing that most of the global burden of diseases and health inequalities are caused by wider social determinants. This interdependence is also recognized by the Millennium Development Goals. Without significant gains in poverty reduction, food security, education, women's empowerment and alleviated living conditions in slums, no improved or reduced inequalities in health.

The dynamics of globalization affects health in many ways: trade, tourism, physical and cultural environment, economic transactions, transports, production of goods and working environment. Like the communication revolution it has both positive and negative effects, and the opinion is split about its advantages and disadvantages.

The Ottawa conference was followed by a series of WHO global health promotion conferences which also led to regional, national and even local and community initiatives in health promotion:

- In Adelaide, Australia 1988;
- In Sundsvall, Sweden 1991;
- In Jakarta, Indonesia 1997;
- In Mexico City, Mexico 2000; i
- In Bangkok, Thailand, 7-11 August, 2005.

In Bangkok were identified actions, commitments and pledges required to address the determinants of health in a globalized world through health promotion. The Bangkok Charter affirms that policies and partnerships to empower communities, and to improve health and health equality, should be at the centre of global and national development. The Bangkok Charter complements and builds upon the values, principles and action strategies of health promotion established by the *Ottawa Charter for Health Promotion* and the recommendations of the subsequent global health promotion conferences which have been confirmed by Member States through the World Health Assembly. The Bangkok Charter reaches out to people, groups and organizations that are critical to the achievement of health, including:

- governments and politicians at all levels
- civil society
- the private sector
- international organizations, and
- the public health community.

Health promotion is based on the critical human right that the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without

discrimination. Health promotion is the process of enabling people to increase control over their health and its determinants, and thereby improve their health. It is a core function of public health and contributes to the work of tackling communicable and non-communicable diseases and other threats to health.

General principles for prevention and control of NCD

The most of the NCD might be prevented. Personal behaviour related to unhealthy life style and societal (cultural) factors are closely connected to high prevalence and upward trend of NCD. The personal risk of developing disease can be dependent on the interaction between the individual, his or her life style and personal susceptibility and the wider environment. Reduction and control of the more modifiable risk factors and wider determinants remain the cornerstone of action in prevention and control of NCD (*primary prevention*). Although difficult, risk factors associated to unhealthy life styles might be reduced successfully if favourable social awareness and mobilization for such changes would be created.

Interventions built on the implementation of policies tackling the wider health determinants like economic growth, income inequalities and poverty, as well as education, the working environment, unemployment and access to health care, represent the main options for substantial health gains. This broad range of population-wide measures requires broad societal efforts, with both health and non-health sectors working together. The health sector needs to reach out to different sectors of society to make them more aware of the role they play in determining certain conditions and the responsibility they bear for their improvement. By their nature, efforts to reduce social inequalities in health should mainly be regarded as integral in social and economic policies, rather than separate activities targeted at health inequalities.

Medical screening can prevent disability and death and improve quality of life, if it is effectively implemented in early pre-clinical stage of disease while the first symptoms haven't appeared yet, and if effective, affordable and acceptable treatment is available to those who require it (*secondary prevention*). The number of proven screening tests to identify individuals at high risk of disease is limited, and those that do exist require sufficient health systems capacity for effective implementation. Screening, and then treating, individuals for elevated risk of cardiovascular disease using an overall or total risk approach, which takes into account several risk factors at once, is more cost-effective than focusing just on individual risk factors or on those based on arbitrary cut-off levels of individual risk factors.

The most accessible intervention measures for achieving the goals of the primary and secondary prevention of NCD are:

- Legislative and regulatory measures (actions against smoking, promotion of healthy food and nutrition, safe environmental conditions and healthy work-place environment);
- Education of the population to avoid risk behaviour and to accept healthy life styles;
- Identification of health risks among population and implementation of appropriate measures for risk reduction;
- Screening of diseases at early stages in order to provide more efficient treatment and cure, etc.

European NCD Strategy Directives

Population-based prevention is the most sustainable strategy in the long term, and it is a means of addressing a number of NCD and their common risk factors at the same time. Examples of effective interventions to reduce the overall prevalence of risk factors in the population include taxation of tobacco products or lowering the fat, salt and sugar content of processed foods. Multiple risk factor interventions at the population level can bring about changes in risk factor profiles which, while modest at the individual level, can lead to significant impact on NCD mortality at that scale.

Both population-based and high-risk approaches are relevant in Europe in the 21st century, although their potential for further gain and applicability is likely to vary by country and over time. For those European countries where relatively simple and cheap strategies, such as tobacco taxation and replacement of saturated with unsaturated fats, have yet to be widely implemented, population strategies are likely to have the greatest impact, although individual strategies targeting patients at high risk should be introduced in parallel. On the other hand, in those European countries where there have been decades of population-level strategies to tackle risk factors with successful outcomes, an increasing potential for additional health gain may now lie with individual strategies targeting patients at high risk, although population-level approaches should continue.

Preventive interventions need to be combined with efforts to strengthen health protective factors which can enhance people's resilience and improve their resistance to risk factors and disease. Promoting a good start in life with early attachment and adequate support to parents and young children is an important investment in physical and emotional development, with lifelong consequences. Belonging to a social network, and feeling connected with others, can have a powerful protective effect on health. Good social support can help give people the emotional and practical resources they need, particularly for coping with difficult life transitions. The people that receive less emotional and practical social support than others, more frequently suffer from depression, the level of incapacity due to chronic diseases is greater, and in women during pregnancy, the risk is higher for complication of the pregnancy. The availability of the emotional and practical social support varies with the social and economic status. The poverty can lead to social exclusion and isolation. The social cohesion - presence of mutual trust and respect in the local community and wider in society - helps protect the people and their health against the cardiovascular diseases and mental disorders (2,5).

Focus on prevention and the wider determinants of health to improve the health of the whole population and reduce health inequalities is considered essential in both, low income and high-income countries struggling to contain spiralling health care costs.

In summary, overall the greatest potential for health gain lies in a comprehensive strategy that simultaneously promotes population-level health promotion and disease prevention programmes and actively targets groups and individuals at high risk, while maximizing population coverage with effective treatment and care. Tackling the wider determinants of health and reducing inequalities within and between countries has the potential to contribute to major improvements.

Five key principles of European Strategy on NCD Prevention and Control which should guide policy development at all levels are as follows (1):

1. The ultimate goal of health policy is to achieve the full health potential of everyone;
2. Closing the health gap (i.e. solidarity) is essential for public health;
3. People's participation is crucial for health development;
4. Health development can be achieved only through multi-sectoral strategies and Inter-sectoral investments that address health determinants;
5. Every sector of society is accountable for the health impact of its own activities.

In line with the Health for All vision and the definition of health in the WHO Constitution, health is a positive state of well-being and "not merely the absence of disease", and health policy is much more than just patient care. Health as a right extends not only to timely and appropriate health care but also to the underlying determinants of health. A government has the responsibility to act on the social determinants of health and to translate this responsibility into policy, providing the enabling conditions that make health opportunities, and ultimately good health outcomes, available to all, regardless of age, gender, ethnicity, etc. Therefore, in line with the Health for All approach, this strategy addresses all four types of programme efforts needed for health improvement: addressing health determinants; promotion of healthy lifestyles; prevention and early detection programmes; and health-centred patient care.

References

1. WHO Regional Office for Europe. Gaining Health – The European Strategy for the Prevention and Control of Non-communicable Diseases. WHO Regional Office for Europe, Copenhagen, Denmark, 2006:pp.38.
2. Donev D. Situation analysis on non-communicable diseases prevention and control in Macedonia. Ministry of Health of Macedonia, 2007. In press.
3. Wilkinson R, Marmot M, Eds. Social Determinants of Health – The Solid Facts, Second Edition. WHO-EURO 2003.
4. Global Conferences on Health Promotion – Charters, Declarations and other documents: Ottawa 1986, Adelaide 1988, Sundsvall 1991, Jakarta 1997, Mexico 2000 and Bangkok 2005. Available from: http://www.who.int/healthpromotion/conferences/en/ (Accessed on June 4th, 2006).
5. UNDP. National Human Development Report, Social Exclusion and Human Insecurity in Macedonia, 2001. UNDP- Office in Skopje, Macedonia, 2002.