

## Burden of non-communicable diseases and strategies for prevention and control

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During the International Public Health (PH) Conference in Tirana, 6-7 May, 2013, I was invited by the editors-in-chief to write an editorial for the next issue of the Albanian Medical Journal (AMJ). As a member of the AMJ Editorial Board and a member of the Forum for PH cooperation in South Eastern Europe (FPH-SEE) Network and an active contributor to the most of activities of the Stability Pact PH-SEE Project from November 2000, when the project officially started, I accepted the invitation with pleasure and honor.

I read the editorials of the first two issues of AMJ in 2013, written by two worldwide PH coryphaei and leading coordinators and key contributors to the revolutionary PH development in SEE region in the past 15 years, Prof. Dr. Ulrich Laaser and Prof. Dr. Theodore Tulchinsky (1,2). Besides their overview to the past activities and successes in the PH capacity building in Albania and other SEE countries, and a vision for the future directions of PH action, both of them emphasized the key threats to human life and well-being, the highest priority and the biggest challenge for PH professionals, health systems and health policies in the SEE countries - the burden of non-communicable diseases (NCDs) and the need for efficient prevention and control. Their vision is a lighthouse for further navigation of the comprehensive public health policies, strategies and practices towards more efficient NCDs prevention and control with an integrated preventive/curative approach to be

implemented at the frontline of primary health care (PHC), embedded in the community.

The aim of this editorial is to present briefly the burden of NCDs and the comprehensive approach with a focus on two basic strategies for prevention and control of NCDs: wide population strategy and strategy for high-risk individuals (3).

### **Burden of Disease**

NCDs, especially cardiovascular diseases, cancers, diabetes and chronic respiratory diseases are the biggest threats to health globally. Their impact undermines social and economic development at the community, national and global levels. NCDs are the leading global killers today in high and in mid-level income countries, and increasingly in low-income countries as well. Out of all 36 million deaths in 2008 worldwide, 63% were caused by NCDs. This group of diseases strikes hardest at the world's low- and middle-income populations in which nearly 80% of deaths are caused by NCDs. The proportion of global deaths due to non-communicable disease is projected to rise from 59% in 2002 and 63% in 2008 to 69% in 2030 (4-11). The consequences for societies and economies are devastating everywhere, but most especially so in poor, vulnerable and disadvantaged populations. These people get sicker sooner and die earlier than their counterparts in wealthier societies. Most of this care is covered through out-of-pocket payments,

leading to catastrophic medical expenditures. For all these reasons, NCDs, especially heart disease, stroke, cancer and diabetes, cause billions of dollars in losses of national income, and they push millions of people below the poverty line, each and every year. The costs to health-care systems from NCDs are high and projected to increase (6,7,10). Significant costs to individuals, families, businesses, governments and health systems add up to major macroeconomic impacts. Economic analysis suggests that each 10% rise in NCDs is associated with 0.5% lower rates of annual economic growth (12). The socioeconomic impacts of NCDs are affecting the progress towards the UN Millennium Development Goals (13).

At the Tirana PH Conference on NCDs, a number of experts presented abundant data about high, and increasing morbidity, mortality and overall consequences of NCDs in Albania, Macedonia and other countries in the SEE Region in the past decade. Roshi et al. stressed that 89% of the overall mortality in Albania in 2008 was accounted for by the NCDs, with cardio)-vascular diseases (59%) and cancer (18%) among the leading causes of death (14). Similar data on mortality and the overall burden of disease from NCDs were presented by Pollozhani et al. for the Republic of Macedonia (15), and Berisha et al. for Kosovo (16).

The *Global Status Report on Non-communicable Diseases* is the first worldwide report on the state of NCDs and ways to map the epidemic, reduce its major risk factors and strengthen health care for people who already suffer from NCDs with disease management involving both public health and direct clinical care in a shared set of responsibilities with the patients, their families, the health system and society at large (10).

#### **Risk factors**

Epidemiologic studies have identified key *risk factors* and potential interventions to reduce them. A large percentage of NCDs are preventable through the reduction of their four main behavioral risk factors: tobacco use, physical inactivity (sedentary lifestyle), harmful use of alcohol and unhealthy diet (low fruit and vegetable intake and high salt, fat and sugar consumption), as well as some other underlying metabolic/physiological causes such as: raised blood pressure, overweight and obesity, raised cholesterol and some cancer-associated infections (8-10,17-23).

#### **Surveillance**

Current capacities for NCD surveillance are inadequate in many countries. Improving country-level surveillance and monitoring must be a top priority in the fight against NCDs. Three essential components of NCD surveillance constitute a framework that all countries should establish and strengthen. These components include: a) *monitoring exposures* (risk factors and determinants); b) *monitoring outcomes* (morbidity and disease-specific mortality); and c) *health system responses* (interventions and capacity), which also include national capacity to prevent NCDs in terms of policies and plans, infrastructure, human resources and access to essential health care including medicines. Sustainable NCD surveillance systems need to be integrated into national health information systems and supported with adequate resources (9,10).

#### **Strategies**

The majority of NCDs can be averted through policies and interventions that reduce major risk factors. There are many options for addressing NCDs through both population-wide interventions, largely aimed at prevention, and through individual interventions aimed at early detection and timely treatments that can reduce progression to severe and costly illness and complications. Many preventive measures for NCDs on a population-wide basis are cost-effective and achievable, even for low-income countries. Some preventive actions can have a quick impact on the burden of disease at the population level. Lifestyle-related behaviors are targeted together with metabolic and physiological risk factors, including high blood pressure, raised serum cholesterol, and impaired glucose metabolism (3,10).

*Population strategy* is aimed at reducing the level of risk factors 'in all individuals in the general population' through health policy for creating conducive environment that enables adoption of healthy lifestyles and appropriate legislation, taxation and financial incentives from the government, as well as health promotion programs and PH inter-sectoral approach. Although the effect is small at individual level, the strategy has a 'large impact on population level', in particular it does not require behavioral changes and can give quick effects. Such strategies are often very cost-effective and can even generate profit. It offers achieving 'good for all' (3,23). While

many interventions may be cost-effective, some are considered 'best buys' – actions that should be undertaken immediately to produce accelerated

results in terms of lives saved, diseases prevented and heavy costs avoided (Box 1).

<b>Box 1. Preventive NCDs interventions considered 'best buys' (10)</b>
<ul style="list-style-type: none"> <li>• Protecting people from tobacco smoke and banning smoking in public places;</li> <li>• Warning about the dangers of tobacco use;</li> <li>• Enforcing bans on tobacco advertising, promotion and sponsorship;</li> <li>• Raising taxes on tobacco and higher price of cigarettes;</li> <li>• Restricting access to retailed alcohol;</li> <li>• Enforcing bans on alcohol advertising;</li> <li>• Raising taxes on alcohol;</li> <li>• Reduce salt intake and salt content of food;</li> <li>• Replacing trans-fat in food with polyunsaturated fat;</li> <li>• Promoting public awareness about diet and physical activity, including through mass media.</li> </ul>
<p><i>Other cost-effective and low-cost population-wide interventions that can reduce risk factors for NCDs:</i></p> <ul style="list-style-type: none"> <li>• Nicotine dependence treatment;</li> <li>• Promoting adequate breastfeeding and complementary feeding;</li> <li>• Enforcing drink-driving laws;</li> <li>• Restrictions on marketing of foods and beverages high in salt, fats and sugar, especially to children;</li> <li>• Food taxes and subsidies to promote healthy diets.</li> </ul>
<p><i>Additional interventions in support to prevention of NCDs:</i></p> <ul style="list-style-type: none"> <li>• Healthy nutrition environments in schools;</li> <li>• Nutrition information and counseling in health care;</li> <li>• National physical activity guidelines;</li> <li>• School-based physical activity programs for children;</li> <li>• Workplace programs for physical activity and healthy diets;</li> <li>• Community programs for physical activity and healthy diets (Healthy cities and environments supportive to health, food processing improvement with low salt, trans fats, sugar, increasing availability of healthy foods with low price, promotion of healthy food choices);</li> <li>• Designing the built environment to promote physical activity (promotion of walking/ cycling, sidewalks, pedestrian zones, automobile use limitations, incentives for use of bus).</li> </ul>

Some population-wide interventions are recommended to focus on cancer prevention i.e. vaccination against Hepatitis B, a major cause of liver cancer, vaccination against human papillomavirus (HPV), the main cause of cervical cancer. Protection against environmental or occupational risk factors for cancer, such as aflatoxin, asbestos and contaminants in drinking-water can be included in effective prevention strategies. Initiatives at the local community level are the most efficient when multifaceted, with community involvement, and the intensity and duration to be sufficiently good and large enough (3,9,10).

*Strategy for high-risk individuals*, with interventions for individuals undertaken by the country health-care systems, is aimed at 'detection and treatment of high-risk individuals', who either already have NCDs or who are at high risk of developing them, through screening and treatment before complications occur. Such interventions can be cost-effective, or low in cost. Such strategy offers achieving large effects in a few people, but has 'little impact on population level'. It requires behavioral changes at the individual level, cooperation and personal responsibility - to make healthy choices available. Often, the costs are high (drugs for years for many patients), and it is possible to achieve 'good

for some' (3,23). There are many cost-effective and 'best buys' (high impact, very cost-effective, affordable and feasible) interventions to proactively detect and effectively treat individuals with NCDs, and protect those who are at high risk of developing them. Financing and strengthening health systems to deliver the prioritized package of 'best buys' interventions that are essential for preventing the progression of NCDs through a PHC approach is a pragmatic first step to achieve the long-term vision of universal coverage (9,10,23).

The long-term nature of many NCDs demands a

comprehensive health-system response through prioritizing PHC cost effective preventive and proactive screening and timely treatment approach instead of focusing on hospital-centered acute care, when cardiovascular disease, cancer, diabetes and chronic respiratory disease have reached the point of acute events or long-term complications. The second one is still dominant and a very expensive approach in developing countries which does not contribute to a significant reduction of the NCD burden (9,10). Likewise population-wide interventions, there are also "best buys" and other cost-effective approaches in individual health-care interventions (Box 2).

### **Box 2. 'Best buys' and other cost-effective interventions in the strategy for high risk individuals (10)**

- Counseling and multidrug therapy, including glycaemic control for diabetes for people  $\geq 30$  years old with a 10-year risk of fatal or nonfatal cardiovascular events  $\geq 30\%$ ;
- Aspirin therapy for acute myocardial infarction;
- Screening for cervical cancer, once, at age 40, followed by removal of any discovered cancerous lesion;
- Early detection of breast cancer through biennial mammographic screening (50–70 years) and treatment of all stages;
- Early detection of colorectal and oral cancer;
- Treatment of persistent asthma with inhaled corticosteroids and beta-2 antagonists.

When cost-effective health-care interventions for detection and treatment of high-risk individuals are complemented with population-wide prevention strategies, it may save millions of lives and considerably reduce human suffering from NCDs. Implementation of the strategies needs to be followed with an appropriate action plan for monitoring and communication of the effects with the population. The delivery of effective NCD interventions is largely determined by the capacity of health-care systems. Gaps in the provision of essential services for screening and early treatment of NCDs often result in high rates of complications such as heart attacks, strokes, renal disease, blindness, peripheral vascular diseases, amputations, and the late presentation of cancers. This can also mean catastrophic spending on health care and impoverishment for low-income families. Strengthening political commitment and giving a higher priority to NCD programs are key to expanding health system capacity for tackling the NCDs.

Improvements in country capacities are particularly needed in the areas of funding, health information, health workforce, basic technologies, essential medicines, and multi-sectoral partnerships (3,10,24-26).

#### **Health policy**

Countries need to address NCDs in terms of policies, strategies and action plans, infrastructure, surveillance and population-wide and individual interventions. All stakeholders should be included: policy-makers, health officials, non-governmental organizations, academia, relevant non-health sectors, development agencies and civil society. Integrated programs for prevention of NCDs directed to lifestyle 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 (10,23,26).

The 2008-2013 Action Plan (9) was developed by WHO and Member States to translate the Global Strategy for the Prevention and Control of NCDs (8) into concrete action. The Plan highlighted six key objectives (Box 3).

## Conclusion

Despite abundant evidence on the NCD epidemic and burden of disease, which are to a great extent preventable, some policy-makers still fail to regard NCDs as a national health priority. Misunderstandings such as 'NCDs afflict mainly the wealthy' and misconceptions linked to harmful individual lifestyle behaviors and issues of 'blaming the victim' continue to impede effective actions. On the other hand, the influence of socioeconomic

circumstances on risk and vulnerability to NCDs and the impact of health-damaging policies are often underestimated by some policymakers, especially in non-health sectors, who may not fully appreciate the essential influence of public policies related to tobacco, nutrition, physical inactivity and the harmful use of alcohol on reducing behaviors and risk factors that lead to NCDs. Overcoming such misconceptions and viewpoints involves changing the way policymakers perceive NCDs and their risk factors, and how they subsequently act. Concrete and sustained action with a comprehensive approach and multi-sectoral action, including civil society and the private sector, is essential, to prevent exposure to NCD risk factors, address social determinants of disease and strengthen health systems for surveillance, screening and to provide appropriate and timely treatment and care for those with established disease.

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