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Better noncommunicable disease outcomes: challenges and opportunities for health systems

Country assessment THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA

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Abstract

We have reviewed the health system challenges and opportunities in the former Yugoslav Republic of Macedonia for improving core services for the prevention, early diagnosis and management of noncommunicable diseases (NCDs). The outcomes of most of these diseases have been improving, while mortality from diabetes has been increasing, and there are significant regional differences in the rates of premature mortality. The success achieved is partly due to progress in core population interventions (e.g. tobacco control) and individual services, although these could be further strengthened. It is recommended that, to further strengthen the health system response to NCDs, the Government should consider the following areas: strengthening governance and coordination mechanisms; investing in strengthening the evidence base and using evidence-based actions; empowering the population and patients; and optimizing models of care, aligning incentives and establishing mechanisms for continuous quality improvement.

Keywords

CHRONIC DISEASE
HEALTH CARE SYSTEM
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HEALTH PROMOTION
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Acronyms and abbreviations

| | |
|-----|-------------------------|
| CVD | cardiovascular disease |
| HIF | Health Insurance Fund |
| NCD | noncommunicable disease |



Introduction and rationale

Noncommunicable diseases (NCDs) are responsible for over 60% of deaths globally (WHO, 2011). They represent one of the main public health challenges in all countries, regardless of their economic status, and threaten economic and social development. Without concerted efforts at country level, the prevalence of these diseases is predicted to increase in the coming decade.

The situation in Europe is worse than the global average, as the four main NCDs [cardiovascular disease (CVD), cancer, chronic obstructive pulmonary disease and diabetes] account for the vast majority of the disease burden and of premature mortality (WHO Regional Office for Europe, 2013). In the European Region, NCDs account for nearly 86% of deaths and 77% of the disease burden, placing increasing strain on health systems, economic development and the well-being of large portions of the population, in particular those aged 50 years and older.

NCDs also have a significant macroeconomic impact and exacerbate poverty (Bloom et al., 2011). Most NCDs are chronic and require repeated interactions with the health system and recurring, continuous medical expenses, often resulting in catastrophic, impoverishing expenditure. It has been estimated that the loss of productivity due to NCDs is significant: for every 10% increase in NCD mortality, economic growth is reduced by 0.5%.

Improvement of population health, a sustainable, efficient health system and better quality and access to health services are some of the main goals of the strategic plan for health in the former Yugoslav Republic of Macedonia 2012–2014 (Ministry of Health, 2013). Like many other countries, it faces a growing burden of NCDs. Mortality from CVD is stable at a high level, but mortality from diabetes is increasing from already alarming levels, and mortality from malignant neoplasms is increasing to above European Union levels. A national health strategy up to 2020 is being prepared with international assistance, in which the national authorities are paying special attention to NCDs. The assessment reported here is expected to have a significant impact on the reform that has been continuing since the country gained independence in 1991. The assessment will also form the basis for a dedicated strategy and action plan for the prevention and control of NCDs, of which a first draft was produced recently.

This country assessment is part of a project of the WHO Regional Office for Europe to increase support to Member States in strengthening their health systems for better NCD outcomes. Seven assessments have been conducted to date, in Belarus, Croatia, Hungary, Kyrgyzstan, the Republic of Moldova, Tajikistan and Turkey. The same approach and multidisciplinary assessment teams were used for all the country assessments, which are based on a structured guide outlined in a background paper on the role of health systems in reducing NCDs (WHO Regional Office for Europe, 2014a). While the same guide was used for all the country assessments, the recommendations are specific to each country. This assessment covers mainly CVDs and diabetes, with particular attention to nutrition and to alcohol and tobacco consumption, and a minor focus on cancer.

The objectives of this country assessment are twofold. The first is to identify factors that limit use of the health system to its full potential, to form the basis for pragmatic, contextualized, useful policy recommendations for health system strengthening to improve NCD outcomes. The assessment and its policy recommendations indicate the elements of a comprehensive NCD action plan, which will integrate existing actions. Secondly, as part of the regional project, the assessment will contribute to understanding of common regional health system challenges, opportunities for NCD control and promising approaches to tackling NCDs and related issues.

To meet these objectives, a multidisciplinary WHO expert team visited the former Yugoslav Republic of Macedonia on 1–5 June 2015 and met with a wide range of experts and others involved in NCDs. Consultations were held in several departments of the Ministry of Health, with the Health

Insurance Fund (HIF), the State agency for quality assurance, local public administrations, two health centres, family practices, providers of specialist outpatient care and specialist and patient organizations. Presentations, small group discussions and individual interviews were used to share information, review data, identify successes and challenges and build consensus on key points in the assessment. During these visits, team members gathered first-hand impressions and compared information from documents, discussions and presentations with the reality on the ground. Initial impressions formed during the mission were presented and discussed at a stakeholder meeting, the results of which were included in the draft report presented to the Ministry of Health.

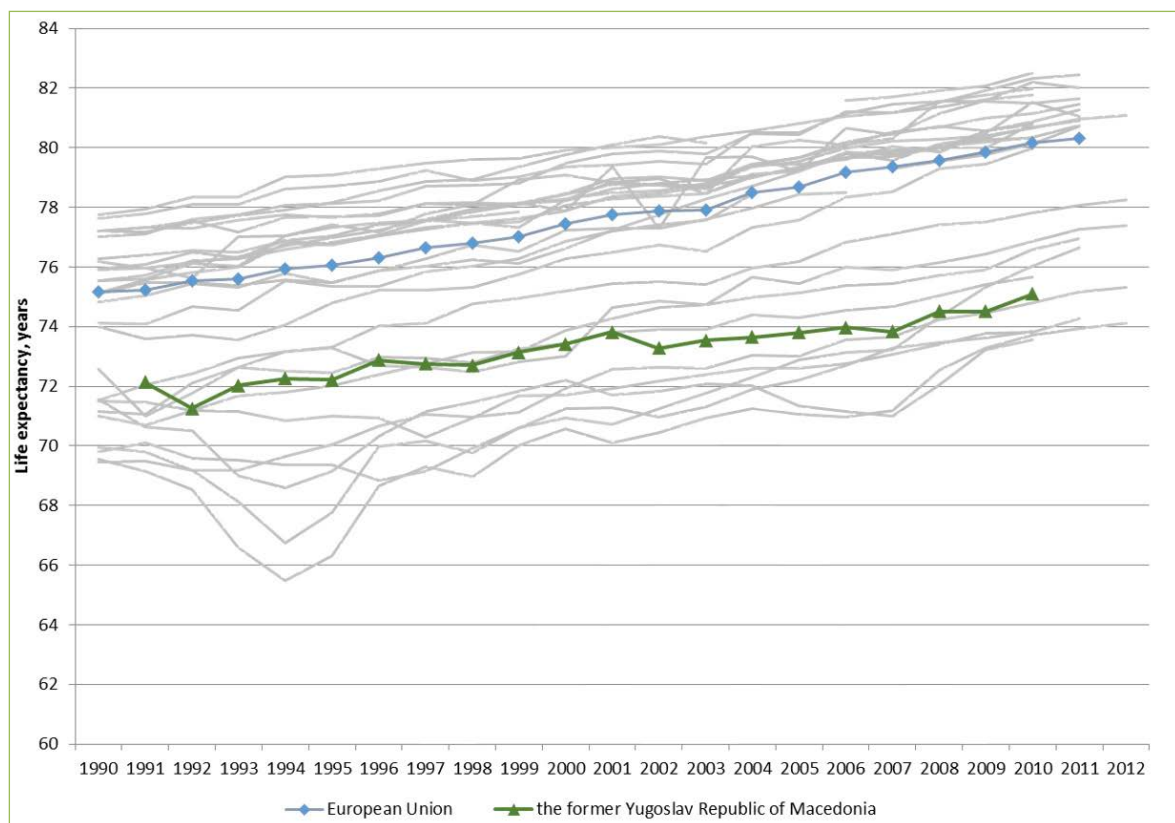
The first section of the report outlines trends in NCD outcomes in the country, mainly on the basis of mortality indicators. The second section is an assessment of the coverage of core population-based interventions and individual services for NCDs, and the third presents health system achievements and barriers to NCD interventions and services. The fourth section describes good practices in the country, and the fifth concludes the report with policy recommendations.



1. Noncommunicable disease outcomes

The former Yugoslav Republic of Macedonia has seen a steady increase in life expectancy since 1991, reaching 75 years in 2010, although the gap with the European Union average increased slightly (Fig. 1). The increase in life expectancy at birth between 1991 and 2010 was slower than the European Union average, and the initial gap increased from 3.1 to 5.1 years; the gap from the longest life expectancy in the European Union increased from 5.8 to 7.4 years during the same period. The gender gap in life expectancy decreased slowly between 1991 and 2010 (from 4.7 to 4.3 years) and is lower than the European Union average (5.8 years in 2010). Interestingly, female life expectancy increased at about the same rate as in the European Union between 1991 and 2001 but did not increase between 2001 and 2007. Male life expectancy continued to increase between 2001 and 2007, although at a lower rate than in the European Union. Between 2007 and 2010, the life expectancy of both men and women increased at about the same rate as in the European Union and reached 73.0 and 77.3 years, respectively, in 2010.

Fig. 1. Life expectancy at birth in the former Yugoslav Republic of Macedonia and the European Union, 1990–2012

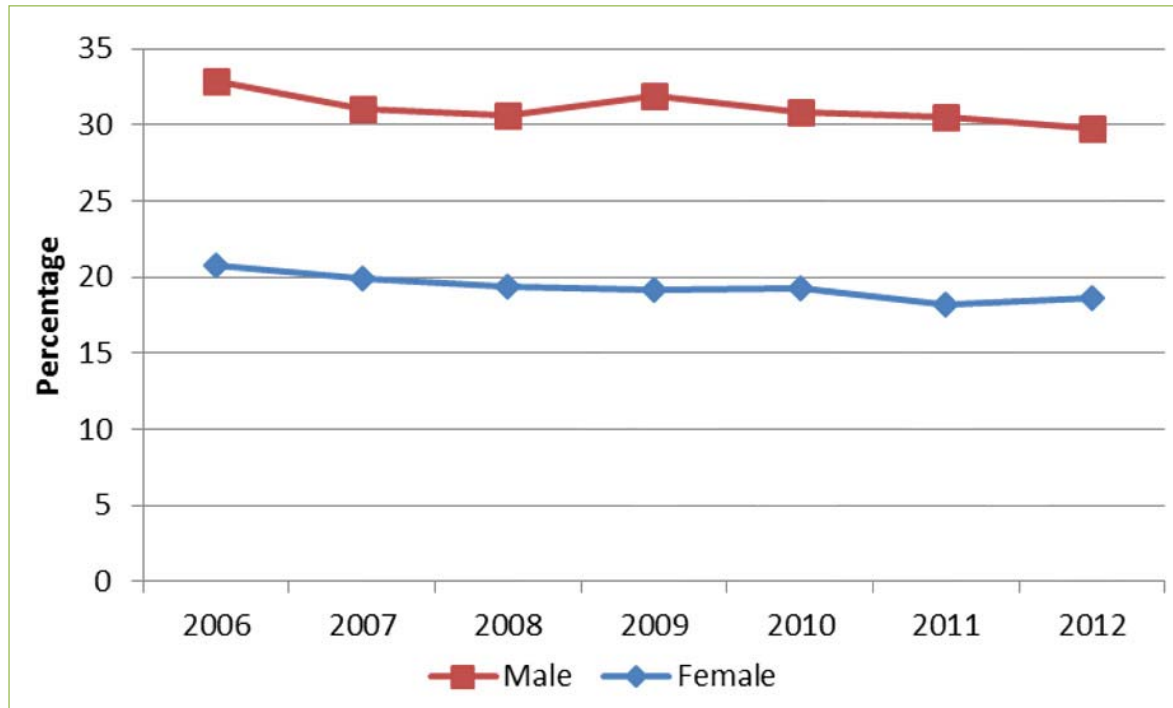


Values for the European Union average and for the former Yugoslav Republic of Macedonia are highlighted; grey lines represent other European Union countries.

Source: European Health for All database (WHO Regional Office for Europe, 2014b)

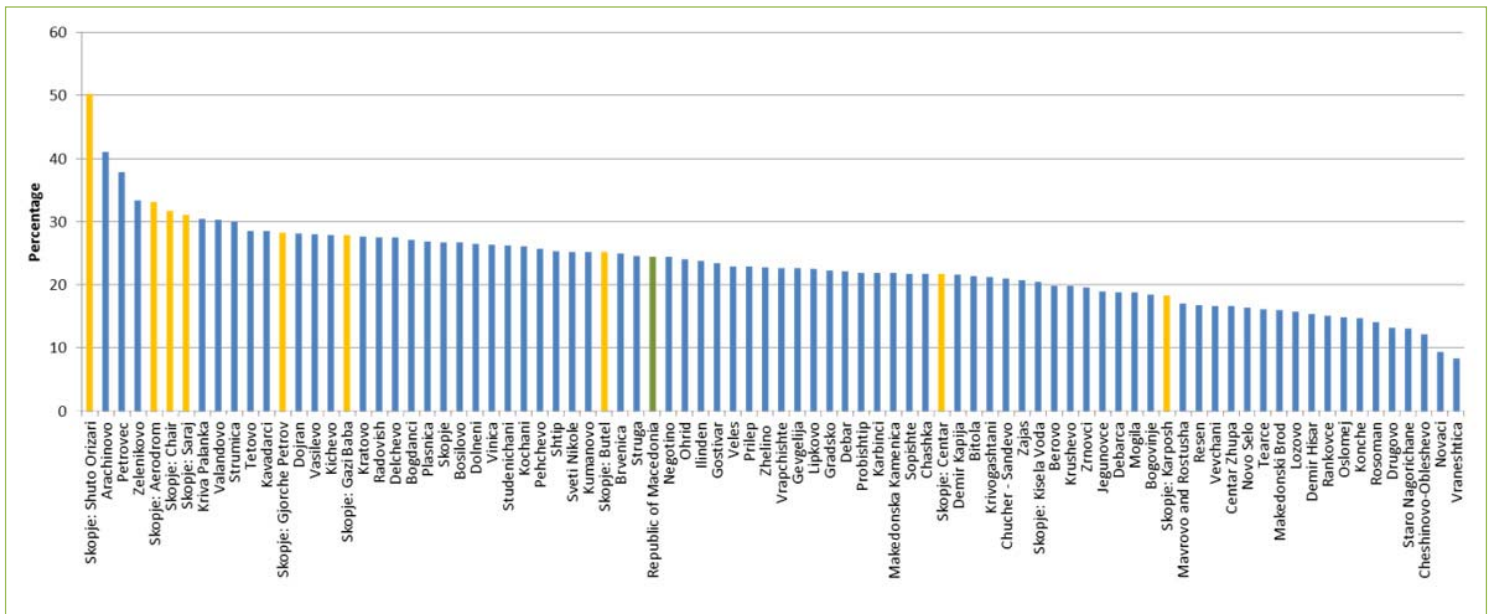
Premature mortality (death before the age of 65 years) has decreased with the increase in life expectancy (Fig. 2). About 25% of all deaths were premature in 2012. A significant difference was found between men and women, of whom 30% and 19%, respectively, died before the age of 65. Almost 5000 people died prematurely, of whom 3850 were men. As a result of premature mortality, life expectancy in the country was shortened by 5 years (6 years for men and 3.8 years for women) in 2010. Premature mortality in the European Union shortened life expectancy by 4.3 years in the same year.

Fig. 2. Percentages of premature deaths (< 65 years) for men and women, 2006–2012



Regional variation in premature mortality is very high (Fig. 3). Slightly more than 50% of deaths in the region with the worst performance and 8% in that with the best performance were premature. The variation within Skopje is also striking: from 50% to 18%. The highest percentage premature mortality is registered in the municipality that is home to people with the lowest socioeconomic status, a very low educational level and poor access to health care services.

Fig 3. Percentages of premature deaths (< 65 years) by region, 2012



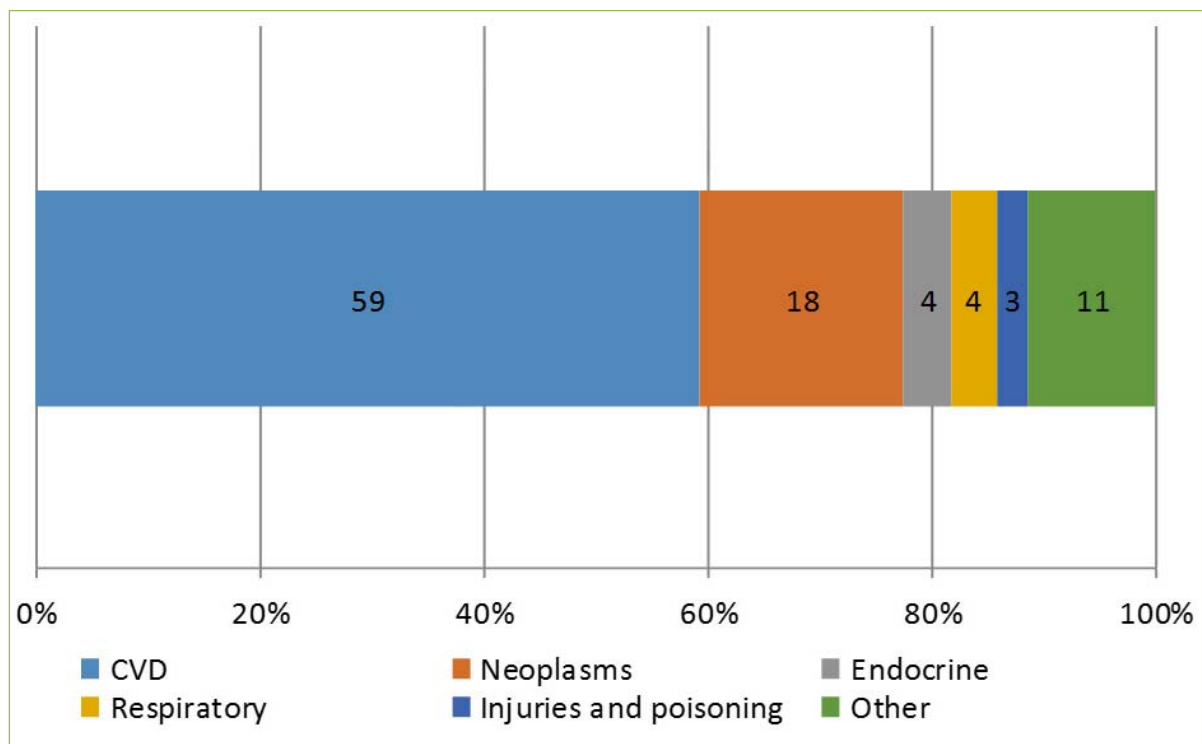
The crude death rate increased and the standardized mortality rate decreased between 1991 and 2010. The crude death rate per 1000 population rose from 7.7 to 9.3 and the standardized mortality rate per 100 000 population decreased from 1013 to 940 during the period

(WHO Regional Office for Europe, 2014b). These changes were accompanied by an increase in the proportion of the population aged > 65 years, from 8% to 12%.

Both infant and child mortality (< 5 years) have decreased. The infant mortality rate per 1000 live births decreased to 7.6 by 2010 and almost reached the European Union level of 4.1. The child mortality rate per 1000 live births decreased to 8.4 by 2010, nearing the European Union level of 4.8.

The main cause of death is CVD, which accounts for almost 60% of all deaths (Fig. 4). The second most important cause is malignant tumours (19%), while other disease groups account for only a minor share in cause-of-death statistics. Interestingly, these proportions have been stable since at least 2006, as has the standardized mortality rate per 100 000 population, which was 553 per 100 000 population in 2010, more than 2.5 times higher than in the European Union.

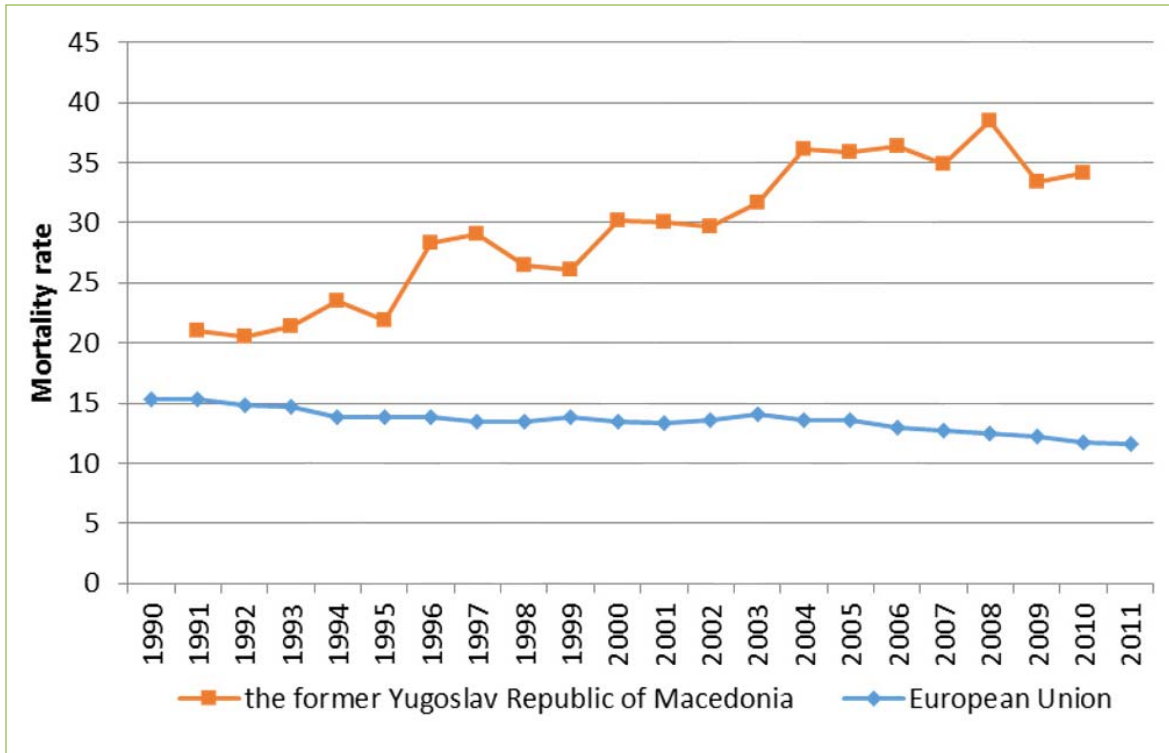
Fig. 4. Causes of death in total number of deaths, 2012



The standardized mortality rate for ischaemic heart disease is at the same level as in the European Union, at 83 deaths per 100 000 population. Thus, the overall difference in mortality from CVD in the former Yugoslav Republic of Macedonia and in the European Union is due to diseases other than ischaemic heart disease, such as cerebrovascular disease (with standardized mortality rates per 100 000 of 184 and 52, respectively). This might also be one of the reasons for the difference in life expectancy.

Mortality from diabetes has increased by more than 1.6 times since 1991 (Fig. 5). The standardized mortality rate per 100 000 population was 21 in 1991 and reached 34 in 2010; the overall trend indicates that the rate was as high as 40 in 2014. In the European Union, the mortality rate from diabetes is decreasing and was almost three times lower, at 12 deaths per 100 000 population. Thus, the country has one of the highest rates of diabetes mortality in the WHO European Region. For example, while the difference from the European Union average is about three times, the rate is eight times higher than the best rate in the European Union in 2010, in Greece. Most deaths from diabetes can be prevented, as seen in countries like Finland and the United Kingdom.

Fig. 5. Standardized mortality rates from diabetes, all ages, per 100 000 population in the former Yugoslav Republic of Macedonia and the European Union, 1990–2011



Cancer incidence has been quite stable since 1995, but mortality has increased, especially since 2005 (Figs 6 and 7). This gives cause to suspect that care for cancer has deteriorated over the years, increasing the probability of death. A similar combination of trends could be also the result of late diagnosis of cancer or diagnosis only at death. In European Union countries, while cancer incidence is increasing, the mortality rate is decreasing, indicating better care and treatment success over time.

Fig. 6. Incidence of cancer per 100 000 population in the former Yugoslav Republic of Macedonia and the European Union, 1990–2011

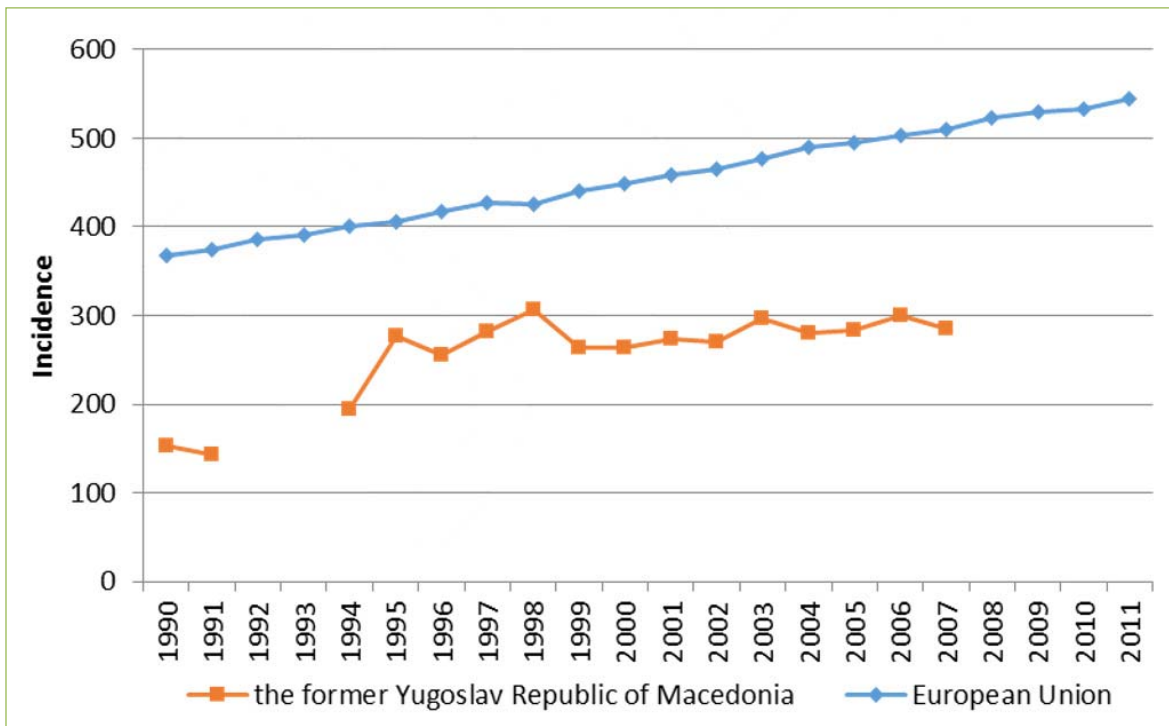
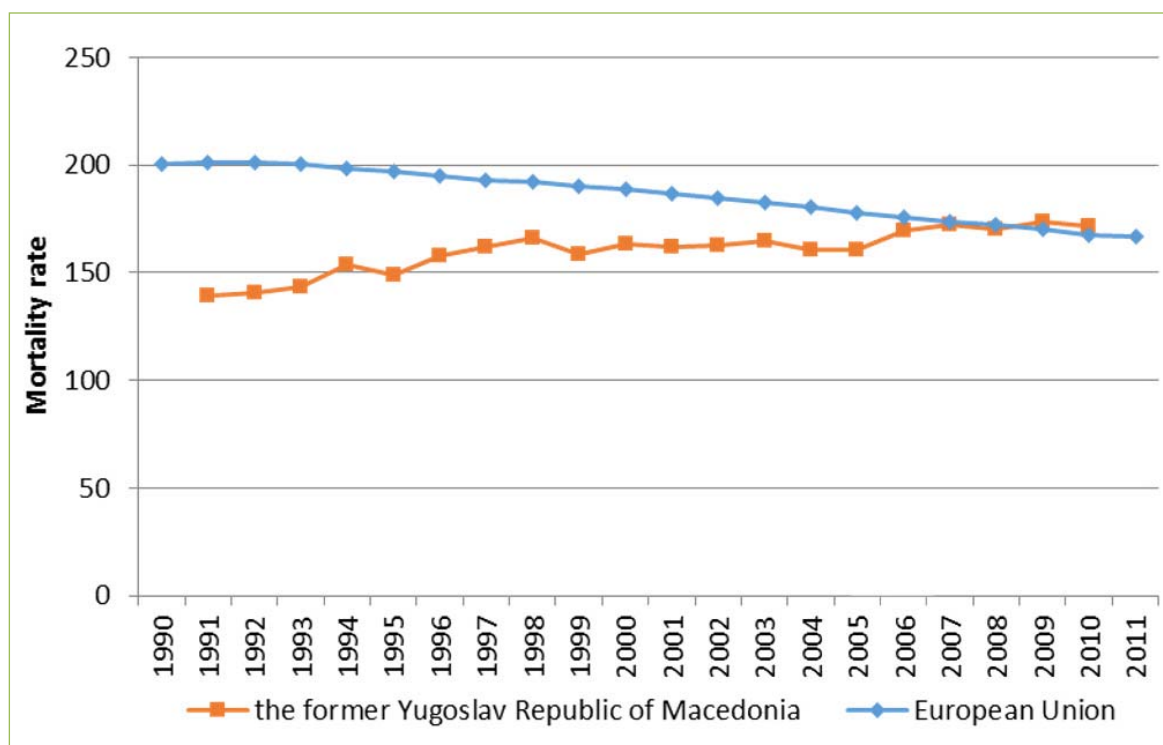


Fig. 7. Standardized mortality rate of malignant neoplasms per 100 000 population in the former Yugoslav Republic of Macedonia and the European Union, 1990–2011



Both the incidence of and mortality from lung cancer are increasing (Figs 8 and 9). An increasing incidence of lung cancer is usually an indication of increasing smoking rates and ineffective smoking prevention, while increases in mortality are usually due to late detection and inadequate care and treatment. The trends in mortality from lung cancer and from all cancers in the European Union are all downwards, further strengthening the suspicion that cancer diagnosis and care could be improved in the former Yugoslav Republic of Macedonia.

Fig. 8. Lung cancer incidence per 100 000 population in the former Yugoslav Republic of Macedonia and in the European Union, 1990–2011

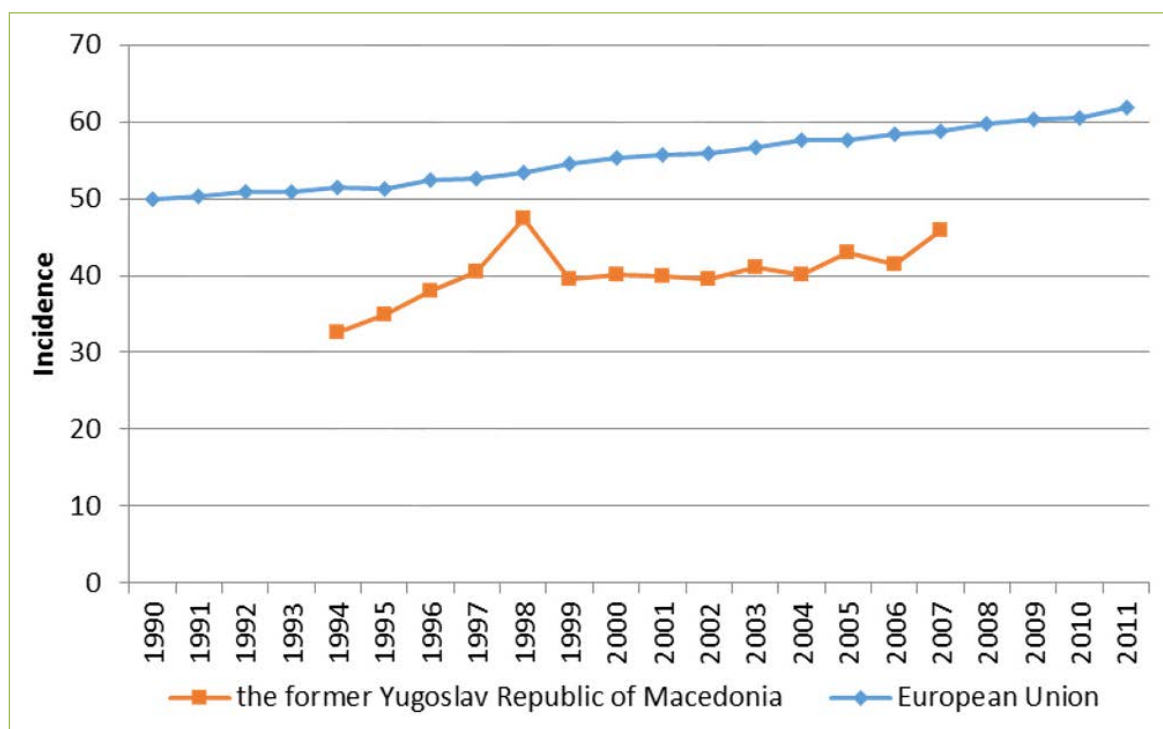
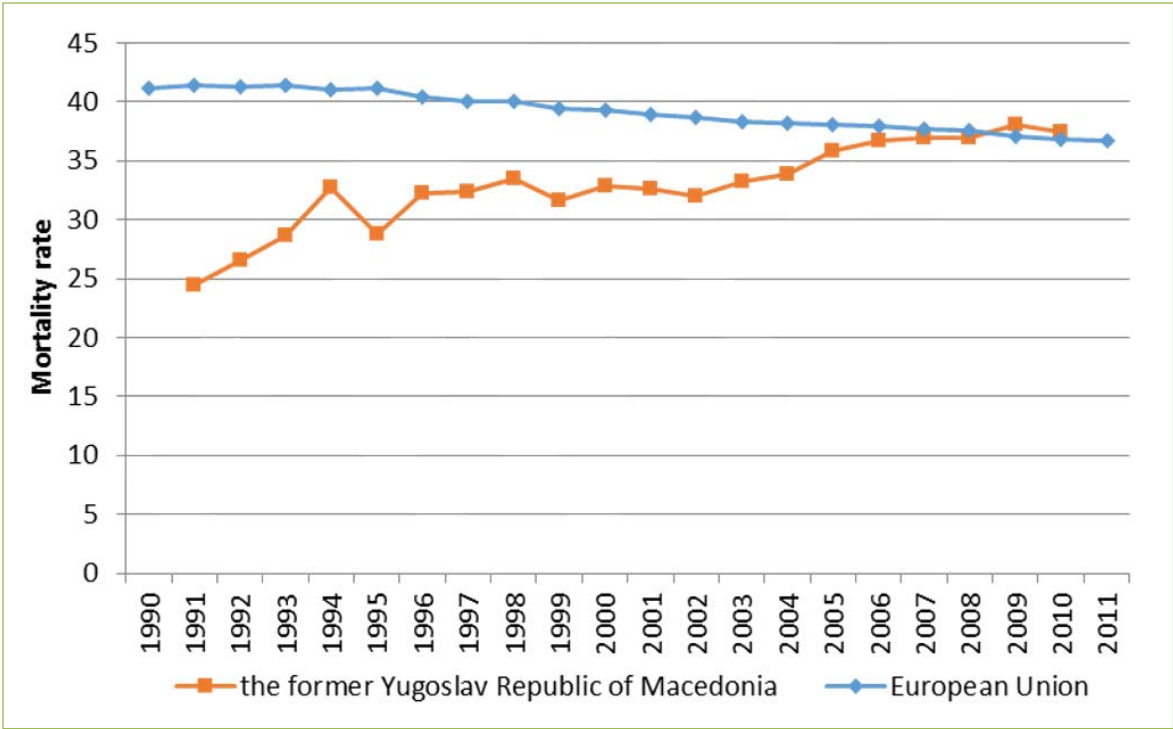


Fig. 9. Standardised mortality of lung cancer per 100 000 population in the former Yugoslav Republic of Macedonia and in the European Union, 1990–2011



2. Coverage of core noncommunicable disease interventions and services

NCDs are preventable, and the goal of most primary prevention strategies is to modify life style and the underlying causes. According to WHO, up to 80% of cases of heart disease, stroke and type 2 diabetes and over a third of cancers could be prevented by eliminating shared risk factors, mainly tobacco use, an unhealthy diet, physical inactivity and the harmful use of alcohol (WHO, 2013; Åkesson et al., 2014).

We report here on the coverage of core population interventions against tobacco and alcohol use and poor nutrition and the coverage of individual services for CVD, diabetes and cancer, which are thus linked to improving NCD outcomes. Core services should be evidence-based, have a high impact and be cost-effective, affordable and feasible to implement in a variety of health systems. The core services reviewed in the country assessments are those listed in the Global action plan for the prevention and control of *noncommunicable* diseases 2013–2020 (WHO, 2013). The standard set of core population interventions and individual services used for all the country assessments are listed in Table 1.

Table 1. Core population and individual services for NCDs

| | |
|---|--|
| <ul style="list-style-type: none"> • Wide range of anti-smoking interventions <ul style="list-style-type: none"> – Raised tobacco taxes to reduce affordability – Smoke-free environments – Warnings about the dangers of tobacco and tobacco smoke – Bans on advertising, promotion and sponsorship – Quit-lines and nicotine replacement therapy | <ul style="list-style-type: none"> • CVD and diabetes – first line <ul style="list-style-type: none"> – Risk stratification in primary health care, including hypertension, cholesterol, diabetes and other CVD risk factors – Effective detection and management of hypertension, cholesterol and diabetes with multidrug therapy based on risk stratification – Effective prevention in high-risk groups and secondary prevention after acute myocardial infarction, including acetylsalicylic acid • CVD and diabetes – second line <ul style="list-style-type: none"> – Range of rapid response and secondary care interventions after acute myocardial infarction and stroke* |
| <ul style="list-style-type: none"> • Interventions to prevent harmful alcohol use <ul style="list-style-type: none"> – Pricing policies on alcohol, including taxes – Restrictions or bans on advertising and promotion – Restrictions on the availability of alcohol in the retail sector – Minimum purchase age regulation and enforcement – Permitted blood alcohol level for driving* | <ul style="list-style-type: none"> • Diabetes <ul style="list-style-type: none"> – Effective detection and general follow-up* – Patient education and intensive glucose management – Hypertension management among diabetes patients – Prevention of complications (e.g. eye and foot examination) |
| <ul style="list-style-type: none"> • Interventions to improve diet and physical activity <ul style="list-style-type: none"> – Reduce salt intake and salt content – Replace trans-fats with unsaturated fat. – Implement public awareness programmes on diet and physical activity. – Reduce free sugar intake* – Increase intake of fruit and vegetables. – Reduce marketing of food and non-alcoholic beverages to children.* – Promote awareness about diet and physical activity. | <ul style="list-style-type: none"> • Cancer – first line <ul style="list-style-type: none"> – Prevention of liver cancer by hepatitis B vaccination – Screening for cervical cancer and treatment of precancerous lesions • Cancer – second line <ul style="list-style-type: none"> – Vaccination against human papillomavirus as appropriate, if cost-effective according to national policies – Early case-finding for breast cancer and timely treatment of all stages – Population-based colorectal cancer screening at age > 50 years and timely treatment – Oral cancer screening in high-risk groups and timely treatment |

* Interventions added to the list in the global action plan on NCDs to allow a more comprehensive assessment

2.1 Population interventions

The former Yugoslav Republic of Macedonia has taken steps to implement many of the core population interventions for NCD prevention. Nevertheless, coordination of public health service provision is fragmented, as public health programmes are narrowly defined and are annual, and there are several independent funding and service provision schemes.

The health system has successfully built up preventive health care services, as reflected in the high immunization coverage of the population. Two departments in the Ministry of Health are responsible for prevention: one for NCD surveillance, the environment and health promotion and the other for communicable disease surveillance and epidemic control. The Ministry proposes 20 prevention programmes annually, which are adopted by the Government and coordinated at national level.

Three of the programmes are considered to be the pillars of the national public health system: the annual public health programme, the programme for early detection of malignant diseases and the “Health for All” programme. The public health programmes address the regular activities of the Institute of Public Health and those of regional public health centres, which include epidemiology, hygiene, environmental health and health statistics, with the main aim of preventing communicable diseases and NCDs and providing health promotion.

The programme for early detection of malignant diseases includes cross-sectoral activities for early detection of cervical, colorectal, prostate and breast cancers in high-risk groups; however, only screening for cervical cancer is systematic, while the other cancers are detected opportunistically. In addition to screening, the programme includes education of high-risk groups. The “Health for All” programme offers free health examinations, mainly for CVD, and counselling on a healthy life style.

Public health activities are in principle coordinated by the national Institute of Public Health in Skopje and provided by 10 regional public health centres. The Institute of Public Health is a top-level scientific institution, which prepares public health guidelines (specifically for epidemiology, social medicine and hygiene), participates in drafting strategies (e.g. for public health, NCDs, vaccination, adaptation of the health system to climate change), action plans (e.g. for heat waves, cold waves, crisis management), programmes (e.g. on screening for malignant disease, CVD, management of certain infectious diseases) and legislation, while also providing selected highly specialized preventive services (e.g. laboratory services for virology and drug control).

The 10 regional public health centres are independent, and cooperation with the national institute is based on historical and natural connections and on expertise and assistance provided by the national institute to the regional centres. These 10 centres provide services for their respective populations in the following areas: epidemiology and quarantine for communicable diseases; vaccination (including overseeing the compulsory programmes); epidemiology of NCDs; and drinking-water safety, food safety, nutritional status assessment, health statistics and health promotion. The Ministry of Health has also established quit centres for smokers in the 10 public health centres, where specialists have experience in promoting healthy living, such as on alcohol, tobacco, diet and physical activity.

The Ministry of Health provides direct funding from the national budget to 33 health centres for provision of preventive services. This funding is additional to the programme-based funding used to provide public health services at the 10 regional public health centres. The 33 health centres are geographically dispersed throughout the country. Their main role in the health care system is to provide preventive services that are not included in the health insurance benefit package and outpatient specialist care, such as follow-up home visits for chronic diseases and consultations with some specialists. The funds for prevention are used for vaccination and to run the polyvalent “patronage” nursing units. Patronage nursing is a form of specialized nursing in primary care settings, specifically for home visits, such as postpartum visits to mothers and their infants. In certain regions, patronage services have been extended to include preventive and therapeutic interventions for ischaemic heart disease, tuberculosis and neoplasms, thus

extending their role to “polyvalent patronage”.

Preventive services are also provided through the health insurance scheme. Primary care doctors are contracted in a modified capitation model, whereby up to 30% of the capitation can be withheld if the performance targets defined and set by the HIF are not met. The performance targets are revised periodically, and preventive goals are set for specific population groups. The goals of each primary care doctor are defined on the basis of the age and gender structure of his or her pool of patients. The preventive goals in the performance package include preventive check-ups for CVD, diabetes, kidney diseases and obesity and rational prescribing and referral. In 2013, preventive services were provided to 12–13% of insured people at risk for CVD (Health Insurance Fund, 2014). The Ministry of Health commissions screening of high-risk groups for cancers (colorectal, cervix, breast and prostate) separately, and additional payments are made for achieving these goals.

The following section describes the risk factors that account for most of the NCD disease burden in the former Yugoslav Republic of Macedonia.

Tobacco

The prevalence of smoking in the country was 39% according a recent study, but, as data on adult smoking are not collected regularly, it is difficult to assess the impact of tobacco control measures. The annual report of the Institute of Public Health (2014) reported that the prevalence of regular smoking in the adult population in 2012 was 40–50%. A WHO STEPwise approach to surveillance is planned for 2016, which will allow monitoring of adult tobacco smoking. In 2008, almost 10% of students smoked cigarettes regularly at the age of 16, and 43% had tried or experimented with smoking in 2007 (Hibell B, et al. 2012). The same report indicated that the average age at starting regular smoking was 15 years.

Although legislation and mechanisms for tobacco control have been created, full implementation and enforcement of tobacco control policies remains a challenge. A tobacco control strategy and action plan were prepared in 2015, which are fully in line with the provisions of the WHO Framework Convention on Tobacco Control. Many of the key measures of the Convention (e.g. a smoking ban in all indoor public places, a ban on direct advertising, promotion and sponsorship, textual and pictorial health warnings on tobacco products) have been introduced by national legislation, and intended to be implemented in a comprehensive, multisectoral manner. Smoking ban in public space has been introduced as well while enforcement of this could be strengthened.

Some individual counselling and cessation treatment services have been established at local health centres. Pharmaceutical products and nicotine replacement therapy are legally available for the treatment of tobacco dependence, but their cost not covered by public funding or reimbursement.

Alcohol

Registered consumption of pure alcohol in the country in 2009 was 3.9 L per inhabitant per year, and total alcohol consumption was 6.7 L per inhabitant (WHO, 2014a). Consumption has decreased slightly since 2003 and compares favourably with total alcohol consumption in the WHO European Region, which is 10.9 L per capita per year. According to the Global status report on alcohol and health (WHO, 2014a), 47% of the population drinks beer, followed by 40% who drink wine and 13% strong spirits. In 2010, the prevalence of heavy alcohol consumption was 12% among men and 1% among women (WHO, 2014a).

The Ministry of Health has formed a working group to draft a strategy and an action plan for preventing the problems associated with alcohol abuse. A national strategy for the prevention of harmful alcohol use and alcohol-related disorders was available for 2008–2012, and a number of legislative acts have been adopted, such as licensing facilities intending to sell alcohol, prohibiting the sale and serving of alcoholic beverages to people < 18 years and prohibiting the sale of alcoholic beverages in shops after 19:00. The permitted legal level of blood alcohol for professional and beginning drivers is 0 g/L and 0.5 g/L for other drivers.

Data on obesity, physical activity and nutrition are not collected routinely for adults; however, it is estimated that 59% of men and 52% of women are overweight, with significant differences among population groups (WHO, 2014b). Roma and Serb women had a significantly higher prevalence of overweight and obesity (60%) than other groups according to a nutritional survey of women of reproductive age in 2011 (Institute of Public Health, 2012). In the same survey, it was found that overweight and obesity were more prevalent among women living in rural areas and increased markedly with age (about 15% in the 15–19-year age group and almost 70% in the 45–49-year age group).

The combined prevalence of overweight and obesity in adolescents was 33% in boys and 20% in girls in 2010 (Currie et al., 2012). Specifically, the combined prevalence of overweight and obesity was 26% for boys and 15% for girls aged 13 years and 24% and 8%, respectively, among 15-year olds. Another study in 2010 showed that up to 34% of boys and 28% of girls aged 6–9 years were overweight and up to 18% of boys and 13% of girls were obese (Ministry of Health, 2012). Thus, adolescents are increasingly overweight; 71% of adolescent boys and 80% of girls were physically inactive in 2010 (Currie et al., 2012).

Salt, sodium and fat intake are all significantly higher than internationally proposed levels. Data from the latest annual household budget survey show that the salt intake in the country was 12.6 g per capita per day, whereas the internationally recommended level is ≥ 5 g/day (Institute of Public Health, 2015a). High salt and sodium intake levels are linked to high consumption of processed foods (Institute of Public Health, 2014). Similarly, the average daily intake of fats is 34% of total calories, while the recommended level is $< 30\%$ (Institute of Public Health, 2013).

Nutrition policies have focused on nutrition in schools, through e.g. guidelines on the quality of the food served in nursery schools and primary schools. The policies were drawn up intersectorally in 2014 by the ministries of health, education and labour and social policy to improve the quality of meals. Regulation of food sales in the vicinity of schools is planned, and a survey of food consumption by the general population and children is under way.

No action has yet been taken to reduce the marketing of food and beverages, especially to children. The Ministry of Health has taken some initial steps in this area in collaboration with the WHO Regional Office for Europe. Moreover, the Government has started a media campaign under the motto “Health is a choice” to raise public awareness about the benefits of healthy nutrition and physical activity.

Table 2 summarizes the evaluations by the assessment team of the core population interventions for NCD control. The interventions for tobacco and alcohol use are the most developed, while more work is required in the areas of diet and physical activity. Weak enforcement mechanisms, however, greatly reduce the impact of the legislation. Regular data collection and surveillance of risk factors are also weak, although a STEPS survey is planned. Data disaggregation by socioeconomic factors is also lacking.

Table 2. Score-card for core population interventions

| Intervention | Rating | Criteria for rating |
|--|------------------|---|
| Range of anti-smoking interventions | | |
| Raise tobacco taxes | Moderate | Tax is 72% of retail price. |
| Smoke-free environments | Moderate | 100% smoke-free environments legislated in hospitals, schools, universities, public transport and workplaces, with weak enforcement. |
| Warnings on dangers of tobacco and smoking | Extensive | Warning labels on all tobacco products cover 35% of package size (front and back, textual and pictorial combined) |
| Bans on advertising, promotion and sponsorship | Extensive | Ban on direct and indirect advertising and promotion |
| Quit-lines and nicotine replacement therapy* | Limited | No quit-lines. Some Government-funded cessation services are available (possibly for payment). Nicotine replacement therapy available at full cost. |

| Intervention | Rating | Score Criteria for rating |
|--|------------------|--|
| Interventions to prevent harmful alcohol use | | |
| Raise taxes on alcohol | Moderate | Alcohol taxes do not follow the price index, and the tax represents about 15% of the retail price for beer and 21% for spirits. No special taxes on products attractive to young people are in place |
| Restrictions or bans on advertising and promotion | Moderate | Regulatory frameworks exist to regulate content and volume of alcohol marketing |
| Restrictions on availability of alcohol in retail sector | Moderate | Regulatory frameworks on serving of alcohol in all Government and educational institutions |
| Minimum purchase age regulated and enforced* | Extensive | Minimum age of 18 years for all alcohol products and effective enforcement with loss of license |
| Permitted blood alcohol level for driving* | Moderate | Maximum blood alcohol content 0.5 g/L and 0 for novice and professional drivers |
| Interventions to improve diet and physical activity | | |
| Reduce salt intake and salt content in foods | Limited | < 10% reduction in salt intake in past 10 years |
| Virtually eliminate trans fatty acids from the diet | Limited | There is no evidence that <i>trans</i> -fats have been significantly reduced in the diet. |
| Reduce free sugar intake* | Limited | The aim to reduce the intake of free sugars is mentioned in policy documents, but no action has been taken. |
| Increase consumption of fruit and vegetables* | Moderate | The aim to increase consumption of fruit and vegetables is in line with the WHO/FAO recommendations of at least 400 g/day and some initiatives exist |
| Reduce marketing pressure of food and non-alcoholic beverages to children* | Limited | Marketing of foods and beverages to children is noted as a problem but has not been translated into specific action in Government-led initiatives. |
| Promote awareness about diet and activity* | Moderate | There has been some workforce development for nutrition and physical activity; nutrition and physical activity are becoming important elements in primary care |

*Criteria additional to those mentioned in the *Global action plan for the prevention and control of noncommunicable diseases 2013–2020* (WHO, 2013).

2.2 Individual services

Risk assessment is built into primary care software solutions and is used routinely. Thus, the basis for stratification and management of the patient pool is available, so that every patient can be directed to the most appropriate, effective care for their disease. Inclusion of the risk stratification tool into clinical software in primary care provides possibilities for automating and streamlining patient pathways and management. Currently, neither the data entered into the risk assessment tool nor the risk scores are recorded or analysed automatically, and it unclear how many data are manually transferred to medical records (either electronic or paper). The interviews with primary care doctors did not clarify whether risk stratification data were actually used for patient management.

Discontinuity of care obviates the full benefit of risk stratification and resources in general. As stated above, the risk scores are not used to their full potential, due partly to the current rules for follow-up, referral and prescription, which require patients to make many contacts at different levels and stages of care. This leads to discontinuity of care. There are no clearly defined patient pathways for most common conditions and no comprehensive process for transferring patients from one provider to another.

The core individual services are provided, but there is little information about the coverage of target populations or the impact of the services. Few epidemiological studies have been conducted on disease incidence and prevalence, and service coverage cannot be estimated, as the population in need is unknown. Further, patient outcomes are not analysed routinely and are not used systematically to monitor the impact of the care. Hence, while the services are provided, there is little information on whether the volume of services is adequate or whether the services have improved health.

Patient follow-up and care management should be strengthened to increase adherence to treatment and improve care outcomes. One of the challenges identified in the interviews was poor treatment adherence; e.g. endocrinologists estimated that more than half type 2 diabetes patients on non-insulin treatment stopped their medication. The situation could be improved by defining care pathways and protocols for patient transfer and active follow-up and introducing care managers and information solutions for integrated care management, patient outcome monitoring and patient reminders.

Patient education and support for self-management and prevention of complications should be strengthened. Current patient education activities are limited to providing leaflets and one-time training sessions or basic counselling. These activities are usually not enough to change patient behaviour in the long term. Patient education and support for self-management should be more regular and comprehensive. Additionally, interventions such as nurse-led foot clinics should be an integral, regular part of diabetes care to prevent complications and provide patient education and support.

Table 3 gives further information and scores for core individual services for CVD and diabetes, which are essential for a comprehensive, well-functioning system of NCD care.

Table 3. Score-card for core individual services

| Intervention | Rating | Criteria for rating |
|---|------------------------------|---|
| CVD and diabetes | | |
| Risk stratification in primary health care | Limited | Risk calculation enabled by software in primary care. On average, 12% of population at risk (25–65 years) receives preventive check-ups annually. The extent to which risk scores are recorded in medical records and used for patient management is unclear. |
| Effective detection and management of hypertension | Limited/ Moderate | Up to 60% of estimated cases are identified in primary health care, evidence-based hypertensive treatment is often prescribed, but adherence is not followed and is estimated to be poor. |
| Effective primary prevention in high-risk groups | Moderate | Primary prophylaxis in place, but low coverage (< 25%) of very high-risk patients and low patient adherence |
| Effective secondary prevention after acute myocardial infarction, including acetyl salicylic acid | Extensive | More than 75% of patients after acute myocardial infarction receive aspirin, beta blockers and statins. |
| Rapid response and secondary care after acute myocardial infarction and stroke* | Extensive | More than 50% of cases of acute myocardial infarction or stroke are diagnosed and treated within 6 h of first symptoms. |

| Intervention | Rating | Score |
|--|-----------------|---|
| Diabetes | | |
| Effective detection and general follow-up* | Moderate | Moderate . Detection rate \leq 50% based on estimates; no functional diabetes registry in primary health care. Evidence-based method used to detect diabetes in asymptomatic patients but limited coverage |
| Patient education on nutrition, physical activity and glucose management | Moderate | Moderate . Most people with type 2 diabetes had at least three primary health care visits. Dietary counselling is provided to most patients but at low volume, quality and effectiveness. Primary health care counselling on physical activity is weak, but each patient is referred for glucosylated haemoglobin measurement once a year. |
| Hypertension management | Limited | Limited . Blood pressure of patients with diabetics is recorded but not analysed systematically or used for care management, angiotensin converting enzyme inhibitors prescribed routinely as first-line antihypertensive |
| Prevention of complications | Limited | Limited . Insufficient capacity for regular eye and foot examinations. Data not collected systematically for further analysis |

* Criteria additional to those listed in the *Global action plan for the prevention and control of noncommunicable diseases 2013–2020* (WHO, 2013)

While cancer care was covered only partially in the assessment, the findings raise concern that care processes are severely fragmented and there are gaps between preventive, screening and treatment services. Figs 6 and 7 show that the incidence of malignant neoplasms is stable and below the European Union level but with mortality slowly increasing above European Union levels, indicating probable deficiencies in early detection and treatment. Lung cancer (Figs 8 and 9) is strongly related to smoking; early detection is especially relevant for this type of cancer. The incidence is stable but significantly lower than the European Union level, while mortality is increasing slowly to above the European Union level, again strongly indicating deficiencies in prevention and early detection.

Screening is available for cervical, colorectal, prostate and breast cancers, according to the interviews, but is systematic only for cervical cancer, while the others are screened opportunistically at the annual health checks for which all patients are eligible. However, many patients were reported to skip such health checks, at which the main focus is CVD.



3. Health system challenges and opportunities to scale up core interventions and services

In this section, health system features that influence the control of NCDs are reviewed. Fig. 10 summarizes the common features.

Fig. 10. Common health system features for NCD control

| | | | |
|---------------------------------------|---|---|------------------------|
| Political commitment to NCDs | Explicit priority-setting | Interagency cooperation | Population empowerment |
| Effective model of service delivery | Coordination among providers | Regionalization | Incentive systems |
| Integration of evidence into practice | Distribution and mix of human resources | Access to high-quality medicines | Effective management |
| Adequate information solutions | Managing change | Access to care and financial protection | |

Source: WHO Regional Office for Europe (2014a)

Challenge 1: Political commitment to NCDs

The former Yugoslav Republic of Macedonia has demonstrated political commitment and support to the NCD agenda and has implemented a number of policies to address key risk factors, such as tobacco and alcohol use.

A good legislative base is in place, reflecting political commitment to better NCD prevention and control. In accordance with WHO recommendations, a number of strategies have been prepared, including one for the prevention and control of noninfectious diseases, another for tobacco control and one for reducing alcohol-related harm in 2008–2012; a number of risk factor strategies have also been prepared. The country ratified the WHO Framework Convention on Tobacco Control in 2006.

The country was one of the first in the WHO European Region to initiate self-assessment of public health on the basis of “essential public health operations” and a self-assessment tool developed by the WHO Regional Office for Europe (2015a). A health strategy for meeting long-term priorities in public health is being drafted in wide consultation with health and non-health stakeholders, central and local government, academia and civil society. Specific national priorities have been set for improving the health of vulnerable populations, including ethnic minorities and the poor, such as a strategy on social inclusion and poverty reduction and various policy documents on inclusion of Roma as part of the Decade for Roma Inclusion 2005–2015.

The highest level of Government is beginning to participate and show leadership in European and international health initiatives. The dedication of the Government to improving population health is illustrated by the establishment and operation of the National Committee for Health and Environment and preparation of the national Health 2020 strategy.

Challenge 2: Explicit priority-setting approaches

The situation in explicit processes for setting priorities is ambiguous. On one hand, the processes seem to be there. On the other hand, several and often conflicting processes are also present. Finally, all the processes are used and implemented but more systematic approach could be introduced.

There is a formal process for setting priorities, but the criteria for selecting priorities or weighing them against others is unclear. The interviews indicated that the general process of setting priorities in public health sector is based on proposed priorities by the implementing institutions. These activities are then assessed against the available funds provided by the Ministry of Finance. That seems to be serious constraint since fitting into the financial envelope may sometimes become the main criterion. Still, the Government seems to prioritise change in health sector which may have positive influences on the resources allocation.

The Ministry of Health performs mainly technical tasks, which may reduce its capacity for stewardship that it could and should be its main function. There is large burden of administrative, accounting and other clerical tasks on department heads and staff that are related to execution of different health programs. This burden sometimes hinders MoH staff in performing their stewardship function in full capacity.

The health system is structured and governed in a highly vertical manner, This sometimes allows setting of priority actions to be done according to individual influence. While this can be needed for introduction of major changes in health system, as the Macedonian Government does, the high administrative burden and relative weakness of the stewardship function might negate the effects of this. This vertical manner of governance also applies to management of public sector institutions (e.g. hospitals and other service providers, health insurance fund, national public health institute, etc.) where appointments of the acting managers are done by the Minister of Health.

The structure of the Ministry of Health is fragmented and improved coordination and exchange of information between sectors is needed. At the time of the assessment (May 2015), the Ministry of Health consisted of 21 units with one to nine staff each. This has created a situation in which the stewardship of health is fragmented between small departments. There is also a challenge of possible work duplication that may further contribute to the organisational fragmentation. Change in organisational structure was mentioned but there was no information about what changes and to what extent were planned.

Evidence and evidence-based activities are not widely used in policy development. According to the interviews, there have been no national population studies on NCD risk factors or on health inequities and the impact of social determinants on health. Similarly, there is little evidence on the effectiveness or cost-effectiveness of planned policy actions, and no evaluations have been conducted. The expert community and civil society are rarely consulted or involved. Reforms in the health sector are based on cost-effective practices in other countries in the region or developed countries; however, these are usually not adapted to the national context.

Cost containment appears to be the basis for rationing at both national and facility level. As mentioned earlier, the main priority in policy development is to ensure that planned activities fit into the overall budget envelope. Additionally, emphasis is placed on limiting the list of pharmaceuticals, while ensuring that at least one pharmaceutical per main drug (Anatomical Therapeutic Chemical) group is reimbursed at the maximum level. Rationing is based mainly on the effect on the budget and not on its possible effect on health, for which there is little evidence. This is to be expected, as the fiscal space in the country is tight, Government expenditure accounting for about 34% of the GDP in 2012. Nevertheless, prioritization of health in total public spending is above the European average, at almost 14%.

Challenge 3: Interagency cooperation

The country has made good progress in multisectoral action, although it requires further strengthening. The success of NCD prevention and control is strongly influenced by the degree of Government commitment and how it is translated into multisectoral action.

The Government has experience with whole-of-government approaches with the Committee on Health and Environment, established in 2013. The members of the committee include ministers, deputy ministers and the directors of national agencies. Decisions are adopted during Government sessions, providing high visibility. The topics covered by the committee include reducing air pollution, improving waste treatment and the water supply and improving food safety, which are also relevant for NCDs.

The performance of the Committee on Health and Environment could be significantly improved. Thus, the mandate and role of the Committee in the strategic policy planning cycle was reported to be unclear. Additionally, the Committee does not have a clear work plan, an explicit list of topics or a secretariat to provide technical support in preparing material for the Committee to discuss and in summarizing and implementing their decisions.

An intersectoral committee to address NCD-related issues was established in 2012, which took into account decisions by the Committee on Health and Environment to improve performance. The main partners of the committee on NCDs include the ministries of health, labour and social policy, economy, education and science and several agencies and institutions, mainly in the health sector. The role of the committee could be strengthened by broadening the representation (e.g. by including patient and other nongovernmental organizations) and by nominating the Deputy Prime Minister as chair.

The law on public health acknowledges the intersectoral nature of public health (Government of the former Yugoslav Republic of Macedonia, 2010). The law stipulates that the ministries competent in the areas of health, education, science, environmental protection, physical planning, culture, traffic, transport, communications, agriculture, economy, labour, social care and protection and other State and municipal organs shall secure and provide essential public health functions.

The Ministry of Health has a long history of cooperation with other ministries. For example, initiatives have been taken for the provision of healthy meals in schools in cooperation with the Ministry of Education and Science, and national food safety initiatives were developed in collaboration with the ministries of Environment and Agriculture.

The public health councils established in most municipalities are bringing municipal action and national health programmes together. Municipal councils appoint members to the public health councils from various sectors, with one obligatory member from the centre for public health to ensure collaboration. The local public health councils were created to address local problems directly or tangentially related to population health, such as the water supply, waste treatment, air pollution and crisis management. The creation of regional health councils to cover all municipalities in each region began in 2015, partly because the local public health councils lacked funds and therefore functionality. It is too early to assess the impact of these new regional public health councils on population health.

The role of civil society in the health sector is limited; however, several nongovernmental organizations are engaged in patient rights, public awareness of malignant diseases, health promotion and drafting health care legislation. There is political commitment to expand the role of these organizations and to strengthening cooperation with international agencies.

Challenge 4: Population empowerment

As many NCDs are chronic, population empowerment and the active involvement of patients in prevention and control are essential.

The law on the protection of patients' rights and legislation governing health care provision and other aspects of the social contract provide extensive protection for the rights of patients, including the right to access to health care, the right to information and the right to reimbursement. This legislation also outlines several procedures whereby patients can assert their rights at local and national institutional and governmental structures.

A number of significant barriers remain, especially for marginalized groups, including women, rural residents and Roma. While the law on the protection of patients' rights offers a good theoretical basis for every citizen's right to access high-quality, affordable health care, some groups still face significant barriers to access and care, according to the interviews conducted during the assessment. For example, in a region inside Skopje populated mostly by Roma (estimated population, 40 000), primary-level gynaecological services are not available, placing women at a severe disadvantage; this region also has the highest premature mortality rate in the country (Fig. 3).

The law on the protection of patients' rights does not have separate provisions for the right to preventive measures. This public health right, which is incorporated in other legislation such as the law on health care, stipulates that every citizen be included in the health care system, which includes health promotion and disease prevention services, early diagnosis, treatment and rehabilitation. Each year, the Ministry of Health adopts a set of targeted preventive and treatment programmes covering activities ranging from cancer screening to health promotion, vaccination, addiction, child and maternal health, and infectious diseases, such as tuberculosis and HIV/AIDS. The country has signed and ratified numerous international instruments to affirm its commitment to a functional health care system and protecting patients' rights. Passage of the law on patients' rights in 2008 and of the law on mental health in 2006 further aligned the country's legal framework with accepted best practices on human rights.

Local self-government plays an important role and has good opportunities for improving the health of their population. Although the law on local self-government (Government of the Former Yugoslav Republic of Macedonia, 2002) provides the legal grounds for transferring responsibility for health care protection (mainly preventive and primary health care, mental health care, surveillance and public health functions) to local level, the responsibility has not yet been fully assumed by municipalities and especially smaller municipalities, where there are inadequate funds for infrastructure and service provision because of the small populations.

Patient education and support to patient organizations could be further strengthened. Patients appear to be educated about their disease mainly from leaflets and similar tools, a number of which are issued by pharmaceutical companies. Resources for nationally prepared materials were said to be scarce. Thus, patients are at risk of receiving potentially biased information. Increased support to patient organizations and self-help groups and greater engagement of such organizations in policy development could help early identification of health system challenges and creation of an increasingly patient-centred health system.

The national health information system, "Moj termin", is a good initiative for patient empowerment; however, the provision of information to the public could be improved. The Moj termin platform, managed by a team of information technology specialists, allows appointment scheduling by medical staff and patients (e.g. e-appointments for specialist care, e-referral, e- receipts) and review of patients' records by medical personnel at each level of authorization. While medical personnel are obliged to inform patients about changes in appointment times by SMS, centrally introduced changes to the appointment system have occasionally led to disruption of care due to inadequate or late information. However, Moj Termin has great potential to support streamlining of health care service provision and ultimately also improving health outcomes of people.

Challenge 5: Effective models of service delivery

Primary care is central to the health care system in principle, but its role could be strengthened. Reforms to strengthen primary care have been initiated but have not been comprehensive or consistent. Care provided by the health system is not proactive, regular or continuous but fragmented and haphazard.

Organizationally, specialist care and not primary care is at the centre of the health care system, even if this is not immediately evident. Data from the electronic health system administration platform show that primary care doctors frequently refer patients to higher level of care. And while MoH has a policy to reduce referrals to higher levels of care (i.e. introduction of negative financial incentives to the blended payment system in primary care to reduce referrals), other policies in place (e.g. restrictions on diagnosis and prescription rights in primary care, compulsory quarterly referrals of many chronic patients for follow-up visits in specialist care, etc.) reduce the role of primary care as the leader of health care process. Different other factors – e.g. small number of doctors, competing primary care provision formats (see below), problems in training and staffing (see below), high administrative burden, etc. further reduce role and autonomy of primary care.

Reforms to strengthen primary care have been inconsistent and not comprehensive. The introduction of family medicine can be considered an important reform; however, the cost of training and re-training in family medicine is borne by the trainees, creating a barrier for prospective family doctors. Furthermore, those undergoing re-training lose income for the duration of training (at least 3–6 months) at the Medical Faculty of Skopje University. Additionally, when a family doctor (or any other primary care doctor) starts work in a locality, he or she must recruit patients to fill the patient list, as there are no set lists. The start-up costs for a family medical practice were also reported to be borne by the doctor. Instead of further supporting and developing the family medicine, rural doctors were introduced in rural areas in addition to the general practitioners (working in polyclinic type health centres) destined to transition into family doctors. Such competing service provision modes additionally send mixed messages to both professionals and public.

A reform has been introduced to strengthen capacities of secondary care specialists to reduce referrals to tertiary care and thus decrease capacity constraints there. As part of this initiative, there is an ongoing process for purchasing new and contemporary equipment and education of health workers in secondary specialist care.

The primary health care system puts significant load to specialist care reducing its efficiency while number of nurses and ancillary staff in the health care system is low in general. The overall number of physicians per 100 000 population was somewhat lower in the former Yugoslav Republic of Macedonia than in the European Union in 2003 (275 and 347, respectively) but the number of primary care doctors per 100 000 population in 2012 was higher (83 and 79 respectively). The number of doctors per bed was almost equal, but the bed occupancy rate of 60% was lower than in the European Union (77%) in 2013 for an almost equal average length of stay in acute care hospitals. The number of nurses per 100 000 population was significantly lower than in the European Union in 2013 (414 and 850, respectively). As a result, health care financing is almost equally divided among three levels of care, with 30% for primary care, 29% for specialist consultative (outpatient) and 37% for hospital care in 2014 (Health Insurance Fund, 2014).

Care is episodic rather than continuous. While family doctors and general practitioners have patient lists, the rules for diagnosis, referral and prescription support frequent referral to specialist care as reported by primary care doctors and specialists. As an example, 40% of referrals with cardiovascular disease were estimated to be avoidable by cardiologists (see also Challenge 6). Frequent referrals break up the care process, undermine the authority of primary care providers, obfuscates the responsibilities of the different parties for patient health, fragments information and introduces additional stages at which a patient can potentially be lost to care. While many improvements were said to have been introduced, more could be done to streamline care processes.

Care is more passive than proactive. Cancer screening programmes are provided for selected diseases (e.g. cervical, breast and prostate cancer). Regular identification and management of NCDs and their risk factors face several issues: there are some incentives for detection but the response leaves to be desired (likely in relation to care fragmentation). Additionally, most new cases are identified when patients seek help instead of proactively. This is due partly to the lack of population health surveys, so that the true disease epidemiology in the population is unknown. For example, the only figures on the prevalence of diabetes are international estimates, and the prevalence of overweight in the adult population is estimated and not measured regularly. Similarly, most figures on the prevalence of cancers are international estimates issued by patient organizations.

Medical professionals do not have access to good, readily available overviews of patient health outcomes, such as how a patient's blood pressure has responded to a treatment regimen over time. This is due primarily to the use of paper-based medical records and the fact that current information solutions do not allow summation of health outcomes (e.g. blood pressure, blood glucose level, results of other laboratory tests, body weight, waist circumference) in electronic medical records.

Challenge 6: Coordination across providers

Coordination among providers is weak. It is easy to refer patients, and they are therefore "bounced" among providers, as none has been assigned overall responsibility for the patient's care and health outcomes. Prevention of complications receives only minor attention, while rehabilitation services are outdated and usually paid by patients. Collaboration with social services appears to be lacking completely.

Coordination among providers is weak. Patients' right to choose their provider and to access care with a minimum waiting time is a priority in the health care system. As a result (in combination with other factors), it is characterized by a large number of referrals and patient contacts. For example, the average doctor saw 60 patients in secondary outpatient care units and over 60 in primary care units per 7.5-h working day. Many contacts and hospitalizations could be avoided: cardiologists estimated that about 40% of cases of CVD in tertiary care (e.g. all cases of hypertension, mild or moderate heart failure, cardiomyopathy and secondary prevention for stable patients) could be avoided and treated at lower levels. Similarly, all regular check-ups after secondary care visits, prescription renewals and preventive activities could be wholly managed in primary care.

The weakness of the primary care gatekeeping function is illustrated by the fact that the disease and patient profiles are similar in primary care and at higher levels. It is thus significant that an increase in the number of hospital admissions has been recorded, from 79 admissions per 1000 population in 2001 to 116 in 2012.

Care is fragmented on the premises of health care providers, and there is significant undocumented waiting time. The care process involves many steps both in and between facilities; for example, care of a patient in a diabetes outpatient centre typically involved seven steps. After making an appointment in the national online system and arriving at the health care facility, the patient must queue to see a nurse, for laboratory tests, for laboratory results, to see a doctor and several times for registration and co-payment between these steps.

The responsibility for continuity of care has been placed on patients. Given the weak position of primary care in the health system, especially for care management, and the high level of referrals, no one part of the health care system is responsible or accountable for overall care, care management and patient health outcomes in general. There is no defined care pathway or agreed principles of patient transfer between care providers. It is up to patients to determine whether, how, where and when they will arrange a subsequent contact with the health care system. The patients themselves take their case summaries to the next contact. For example, endocrinologists estimated that about half of pre-insulin diabetic patients (50% of cases diagnosed in the country) were lost to treatment; however, other specialists proposed lower figures. The Ministry of Health

recently adopted clinical pathways for the diagnosis and treatment of malignant diseases, which are available on the Ministry's website. Introduction to the pathways to health professionals has begun.

There is no continuous care process that includes prevention of complications. Care teams with various specialists are not used in the provision of care, partly (according to interviews) because other specialists do not want to treat patients with co-morbid conditions, such as most patients with NCDs. This problem is most pronounced for patients with diabetes who have foot complications; however, there are no (nurse led) foot cabinets for the prevention of such vascular complications. It is understandable that surgeons are averse to treating severe but preventable complications of diabetes.

Rehabilitation is not seen as an integral part of the care process, and there are several barriers to its use. The most important barrier is the relatively high cost. Additionally, most rehabilitation treatment (at least in the public sector) is outdated: the equipment and practices in the rehabilitation ward that was visited dated from the Soviet era, with electro-physical regimens shown scientifically to be ineffective. As there is little capacity for rehabilitation in the public sector, an active private market has grown up, which is one of the main financial barriers to rehabilitation services.

Long-term and palliative care services (especially for patients with malignant diseases) are also insufficient. There is scarcity of both human and technical resources; as a result, few services are available, and there are long waiting times. The situation is complicated by the absence of national quality criteria for long-term care.

Social care services are not used systematically to support NCD patients. The interviews revealed only minimal collaboration and cooperation between the ministries of health and social care, with lack of information exchange to assess, provide and coordinate support services to (multi-morbid) NCD patients. As a result, patients themselves organize the social care services they need to manage their disease.

Challenge 7: Regionalization, economies of scale and specialization

Strengthening the health system by further regionalization and specialization could significantly improve both the (cost-)effectiveness and the quality of health services. Governance of the private and the public health care system in a single, unified system would reduce the waste of resources due to duplication and also increase equity in access to services and care outcomes.

Simplification of the provider system in health care could result in significant reductions in the use of resources. One example is in primary care, where there are three different types of provider. Occupational health therapists provide similar services in addition to the purely occupational health services, adding to the competition for patients in primary care. There appears to be a relatively large number of mono-functional hospitals, creating incentives for arbitrary increases in service volume that are not based on real patient needs but on the need to cover institutional running costs.

The centralization and regionalization processes in the hospital sector could be reviewed and strengthened. About 25 hospitals providing secondary inpatient care were reported to operate under sustainable levels of capacity use for reasons such as patients selecting other hospitals, overall population changes, a scarcity of human resources for health care in rural areas and high amortisation of infrastructure. Closure or re-profiling of such facilities, accompanied by reorganization of patient pathways, would free resources to improve infrastructure and the quality of care in centralized facilities. Strengthening of the human and technical capacity of the three regional hospitals has begun, in order to ensure a sufficient volume of specialist outpatient and inpatient care at regional level.

Health care service providers compete for limited resources, but the rules of competition are not clear or not followed. The rules on what services can be provided at what level (i.e.

primary, secondary, tertiary) and type (i.e. outpatient, inpatient day care, inpatient) of care are not followed, when rules exist. For example, hospitals at the secondary level of care seize possibilities to increase their market share and thus their financial sustainability by providing tertiary care services, and this activity is then used to negotiate larger budgets. At the same time, most hospitals try to refer the most difficult cases (such as multi-morbid NCD patients) to other hospitals, to protect their budgets from the expense of managing difficult cases or because they do not have the expertise to treat all the problems of these patients.

Coordination of equipment procurement and service development by service providers could be strengthened. While the Ministry of Health coordinates procurement of more expensive, advanced diagnostics and treatment equipment, service providers organize their own laboratory and other diagnostic services. This creates significant duplication at the national scale, while service providers have an incentive to increase their service volume arbitrarily to use the new equipment to its capacity and thus be able to pay for it (even though the HIF enforces service volume caps). Some coordination, centralization and regionalization of laboratory and diagnostic services and resources would help to reduce such incentives and resource duplication.

Private and public health care providers (hospitals) compete for patients and public funds, but public providers are handicapped in this competition by the existing rules. For example, all staff recruitment by public service providers must be approved by the Ministry of Health (and the Ministry of Finance), which has direct managerial oversight, as their owner. New recruitment is strongly limited in order to contain public sector costs (see further details under Challenge 10); however, at least one hospital reported that it had to recruit more staff than needed, e.g. to retain positions for professionals from hospitals that have been closed in other areas of the country. Still, the MoH was said to be continuously increasing the funds for employment of key personnel in health institutions (medical doctors and nurses) and to provide additional training possibilities for young specialists abroad in order to retain competitiveness of the public health care services.

Differential rules for private and public health service providers introduce wide inequity in access to services and in the quality of care. Well-off population groups can use both public and private health care services to jump queues or acquire services not provided by public providers. Less well-off population groups do not have the means to obtain private services, resulting in inequity in access to services and ultimately in health outcomes. This translates into lower productivity by the whole workforce and a higher burden for the whole of society.

The organization and management of the national public health system could be reorganized and reintegrated. Currently, regional public health centres have significant operational freedom from the national level, as they are allowed to provide independent commercial services, such as laboratory testing of food and water safety. While they are required to provide the services of the national health programmes under the supervision of the national Institute of Public Health, the financial freedom gained by providing commercial services can undermine their subordination to the national level in other activities. This can also lead to duplication of equipment, human and other resources and underutilization of resources. For example, centralization of laboratory services would help to reduce duplication while also ensuring an adequate, stable volume of work to maintain and improve the quality of the service. At the same time, the resources of the national Public Health Institute could be used more extensively and more stable funding could be secured to reduce the need for securing funding through selling laboratory and other services to interested parties.

Challenge 8: Incentive systems

Overall, strategic purchasing and incentives have been in line with trends in the European Region, but scaling up individual services for NCDs will require strengthening strategic purchasing and adjustment of incentives, particularly the pay-for-performance mechanism.

The Government has separated purchasing from the provision of health services, but strategic purchasing should be further strengthened to provide incentives for prevention, timely detection of illness and proactive disease management. The main role of the HIF, established in 2000, was intended to be the purchase of health products, while the Ministry of

Health has a stewardship function. This separation of roles and responsibilities is not, however, complete. The HIF appears mainly to negotiate minor contract details with service providers, but the main clauses (including contract volume) are prescribed by the Ministry. It was reported in the interviews that the main activity of the HIF is to collect claims data, collate them into regular reports and forwards them to the Ministry, which then monitors the service provider, of which it is the owner. Contracting, monitoring and strategic purchasing functions could be given to the HIF, which would free Ministry resources from technical tasks and create more space for policy development. Ensuring the separation of functions and strengthening the role of the HIF as the evidence-based strategic health purchaser could provide stronger incentives for disease prevention and management.

A commonly used set of payment mechanisms is used in the country: capitation for primary care with payment for performance, payment for performance for specialists and case-based payment for hospitals. While it made sense to introduce these payment mechanisms to break away from the previous line-item budgets, the continuum has been associated with upward referral in the health system, under-use of primary health care and excessive use of both specialists and hospitalization. Further, it means that simple cases are handled at higher, more expensive levels of care.

In primary health care, capitation is complemented by payment for performance to strengthen incentives for prevention and disease management and to discourage referrals. In 2014, 70% of primary health care payments came from capitation and 30% from pay for performance, mainly for preventive goals like early detection of CVD and diabetes. Capitation payment is allocated to primary care facilities, which pay salaries to the staff. The predominant payment incentive is thus capitation and salary, with the associated incentive of referral to specialists; however, part of the pay-for-performance target is that 85% of patients will be treated in primary care, which disincentivizes referral. The referral incentive is nevertheless reinforced by the low autonomy of service providers in primary care, because of the referral and prescription rules; e.g. many patients have to be sent for verification of diagnosis and regular follow-up visits in specialist care, even though most could in principle be treated in primary care.

Performance targets were added to capitation in primary care to rationalize the use of resources and improve early detection and prevention of certain diseases Performance targets were introduced in 2007 and extended in 2014 to include preventive check-ups for CVD, diabetes and kidney disorders, on a mandatory basis. There are two groups of targets: for the whole population and for people aged ≥ 14 years; the latter include the performance targets for NCDs. The six performance domains have a total of nine indicators, of which six are relevant for NCDs (two each for CVD, kidney disorders and diabetes). The former Yugoslav Republic of Macedonia is one of the few countries that chose to introduce negative incentives, i.e. punishing service providers for not achieving targets by withholding part of the capitation payment instead of rewarding them for achieving the targets. Doctors have reacted negatively to the programme, as they feel undervalued, lack autonomy and are not allowed to use their skills to help patients. The disincentives also mean that primary care providers are not motivated to provide innovative care solutions. There has been no evaluation of the impact of this policy on population health or service provision; only an impact assessment of the HIF budget has been conducted. A software platform for collecting data on achievement of the performance targets was introduced recently by the HIF but no data is available at the moment.

The hospital payment system incentivizes an increase in service volume. Hospitals are nominally paid on the basis of disease-related groups. In reality, however, the system appears to be closer to lump-sum payments based on past budgets. For example, in one hospital visited, concern was voiced that the decisions of the HIF and the Ministry of Health on the size of the budget are arbitrary and not transparent; there are no clear rules for the budget caps that are imposed, and hospitals have no say in budget negotiations. Payment on the basis of disease-related groups and of past budgets both incentivize increased service volume. As a result, specialist institutions are motivated to retain referred patients rather than sending them back to primary care.

Challenge 9: Integration of evidence into practice

There is room to reinforce an evidence based approach to the development of policies affecting service delivery in Macedonia such as the pay for performance schemes. Strengthening evidence based interventions is an important challenge for NCD control in Macedonia.

Professional chambers monitor professional standards and have set a licensing system. The system is built on a point system whereby a certain number of points is required to maintain or increase an accreditation level. Accreditation points can, however, be gained in numerous ways, e.g. by attending conferences, teaching or publishing papers. One possible weakness of this system is that it does not include assessment of whether or how continuing training improves everyday clinical practice. Admittedly, such verification would be difficult, but international specialists or organizations could be engaged (or their engagement increased) in accreditation and licencing.

Most national clinical guidelines have been adapted from international guidelines by the Ministry of Health and medical associations. It was reported that guideline development often involves translation of international guidelines or conversion of the results of systematic reviews into guidelines. It was also reported that little effort is made to adapt international evidence to the needs and organization of the country's health care system. It is unclear whether and how compliance with the guidelines is monitored.

Integration of evidence into practice is especially important with regard to population health surveys, outcome measurements in clinical practice and analysis of service provision and quality. Population surveys should be further improved or initiated on health status, disease prevalence, risk factors for NCDs, health care service needs, quality of services and socioeconomic and other barriers to service use in order to provide evidence for improving the impact and cost-effectiveness of the health services. Measurement and analysis of care outcomes in clinical settings is essential for care management and clinical decision support systems. Analysis of service provision patterns is an important tool for increasing the responsiveness and cost-effectiveness of the health system and improving service quality.

Challenge 10: Distribution and mix of human resources

The data on human resource management appear to be scattered and scarce. However, MoH was said to be taking steps to collect such data and develop a human resource management strategy. As human resource management strategy existed previously, the workforce and population needs are not matched. Human resources in public institutions are managed centrally, severely reducing the flexibility of the institutions for responding to needs. Nurses and ancillary non-medical staff could be used more extensively to improve the efficiency and performance of health care.

The workforce should be matched with changing population needs. As data on population needs and on the health workforce are scarce and scattered, the planning of human resources is unlikely to be evidence-based. The lack of a strategy for human resources in health leads to inefficient coordination between needs and the enrolment, curricula and specialization of medical professionals. The curricula and skill mix of the workforce should be updated for both public health and health care. For example, there are insufficient dieticians to train and work with patients with diabetes; insufficient nurses to run foot clinics and work proactively with patients to prevent complications of diabetes leading to severe vascular complications; and insufficient public health nurses (or other specialists) to provide prevention and promotion training and similar activities in communities and in primary health care.

Continuing medical education for both doctors and nurses could be extended and systematized. All health care professionals should be upgraded, their theoretical knowledge updated and their practical skills in their field of expertise refreshed throughout their working life. Continuing medical education for nurses is not obligatory, as there is no legislative

prescription on licensing and re-licensing of nurses and no requirement for professional or continuing medical education. As it is the providers of training courses or donors who determine training opportunities, continuing medical education is ad hoc and discontinuous, instead of systematically improving the quality of service provision. As annual training is not mandatory, there are few offers. Furthermore, much of the workforce has to cover the cost of continuing training themselves, further reducing its attraction.

Human resource management by public health care service providers is severely restricted, as recruitment is administered by the Ministry of Health and approved by the Ministry of Finance. This creates a perceived lack of human resources: human resources are often available, but service providers are not allowed to hire them. The restriction is part of a national goal to reduce public sector expenditure since the global economic crisis of 2008. Service providers cannot even recruit temporary staff, even if they have the funds, because the employee pays the social benefits in temporary contracts, placing a disproportionate financial burden on them and making temporary contracts undesirable. The result of these human resource management principles is that public institutions have been able to hire new staff only sporadically since 2008, while they face a steady decrease in the number of personnel due to retirement and other causes.

The number and role of nurses could be increased to reduce the burden on doctors, and ancillary staff could be increasingly used for clerical tasks. Patronage and community nurses work independently, delivering preventive services during home visits, even though current legislation requires that nurses always work in a team with a doctor. The Government could permit nurses to work independently, as they could play a major role in NCD prevention, especially at the level of primary care but also in secondary care, e.g. specialist nurses running foot clinics for prevention of diabetes complications. In principle, nurses and midwives could also have the right to deliver some prescriptions. The heavy burden on nurses (and doctors) of clerical work (e.g. patient appointments, sending reminders to patients, filling in administrative paperwork) could be shifted to non-medical ancillary staff when specific medical expertise is not needed. The overall ratio of nurses to doctors was 1.3 in 2013 as compared with 2.1 in the European Union (WHO Regional Office for Europe, 2015b), indicating much room for shifting tasks currently performed by doctors to nurses.

Streamlining care, work and documentation requirements could free additional human resources to perform professional tasks. Health care professionals have a large administrative load in terms of paperwork. For example, it was reported that documentation requirements are duplicated in electronic and paper format, and the same data are often reported separately to different institutions, creating duplication and triplication of the reporting burden. It would be advisable to adopt the principle of non-duplication throughout the health care system, so that data in electronic format have priority over the paper format, and also the principle of single entry of data, whereby data once entered are used in all relevant places to eliminate recurrent data entry. The workload could also be reduced by simplifying care and eliminating unnecessary and avoidable patient contacts. As pointed out above, ancillary staff could perform the clerical tasks in which specific medical expertise is not needed, further reducing the administrative burden of medical professionals.

Challenge 11: Access to quality medicines

Access to medicines is good, while the selection of available medicines could be improved. Scientific evidence for adding medicines to the list could be strengthened, with consideration of effectiveness, cost-effectiveness and budget impact.

The national policy is to ensure that at least one pharmaceutical per main drug group is reimbursed fully by health insurance. Hence, patients are given low-cost options to ensure access to high-quality medicines, and 75% of the active agents on the list of medicines that are reimbursed require no patient co-payment. It was reported, however, that it is often difficult to find affordable medications apart from the most common ones; e.g. only 3 of 20 newer cancer medications were reported to be on the list, and no biological agents for the treatment of rheumatoid diseases were said to be included.

There is little scientific evidence for some medications on the list. This was reported to be due to insufficient capacity to conduct the pharmaco-economic evaluations that are required for inclusion of a drug on the list. Similarly, there were reported to be too few analyses of the budget impact of the list.

Challenge 12: Effective management

Management of the health system in general and of its parts could be improved. The possibilities include broadening leadership and managerial skills, making greater use of needs assessment in planning, balancing central oversight with increased managerial autonomy and creating quality improvement systems to support mutual learning and better outcomes.

Planning of policies in public health and health care could be more evidence-based and transparent. Needs assessment could be used more extensively as a basis for policy development to ensure better-focused interventions. Additionally, clarification of the rules for selecting policy priorities should be considered (see Challenge 2 for details). Furthermore, while international evidence and best practices are used to plan actions in the health sector, they appear to be applied without contextualization or adaptation to the national context, reducing their effectiveness and with a possible negative impact on health outcomes.

The provision of public health and health care services could be improved by strengthening management in the health system. There is no uniform, comprehensive, regular leadership development programme for managers at all levels; managerial skills are usually acquired on a project and are of variable quality. This results in significant variation in the skills, understanding and practices of managers, which in turn reduces the overall effectiveness of health system management. Although health institutions are managed by directors appointed by the Minister of Health, their role is more administrative than managerial. Partial centralization of decision-making (e.g. allocation of funds based on pre-defined uses and centralization of human resource decisions) significantly reduces the flexibility of public institutions for responding to changing circumstances, thus also reducing the sustainability of institutions. Additionally, private providers of health care services have much higher managerial autonomy and thus have a competitive advantage over public health care service providers.

Information systems could be used much more widely in management decision-making by service providers, and strong support could be given to quality improvement systems based on mutual learning. In many cases, the data from existing systems are used for external reporting (and seen as a form of control) rather than internal management. An initiative has been launched, however, to develop a health care quality assurance system for improving service quality and clinical outcomes. This initiative is based on a mutual learning approach in which service providers are brought together to exchange experience and learn from best practices. This will create a positive attitude for learning, self-improvement and innovation. The existing information system could be used in this initiative to support learning and self-improvement, instead of as a disincentive.

Challenge 13: Adequate information solutions

The first components of a health information system have been created; further components are required, which should be integrated with existing ones. The system should be broadened to include care coordination and management, to enable patient engagement and to link data on outcomes and service use. Analytical solutions and capacity are also required to generate information for policy development and care planning. Representative population health surveys should be conducted to strengthen need-based planning.

Various information solutions exist, such as for appointment scheduling, prescription monitoring and health insurance claims collection. These components are not, however, integrated into a comprehensive system. Moreover, the information solutions are used mainly for collection and monitoring, while the data are severely underused. This is due partly to the

fact that these are isolated solutions but mostly to poor understanding of the possible value of analytical approaches. This appears to be linked to the “monitor and control” mentality in the health system instead of “govern and develop”.

Outcome data, like blood pressure and glucose levels, are not available in information systems. Entry of outcome data into case summaries in text format does not allow analysis of the data. As a result, there is no evidence to determine whether treatment and service provision have had an impact on the health of patients or whether the health care system has improved population health.

No representative population health surveys have been conducted to establish the status and distribution of health problems and risk factors of diseases. For example, prevalence of overweight and diabetes, an important risk factor and a noncommunicable disease, are assessed by estimations performed by international organizations. This may lead to under- or overestimation of the problem, both creating difficulties in service planning.

Electronic information systems provide an opportunity to speed up creation of disease registers. For example, a diabetes registry was founded in 1996 by the Institute of Public Health; however, while endocrinologists know of the registry, they said that it was of little help in their everyday work. They had expected that the electronic format would support clinical work and would be integrated into their everyday information solutions. The electronic patient record and other information systems provide an opportunity for creating new disease registers.

Doctors can select appointment times with an online tool and patients can see available times, but there is little other patient engagement. Although patients can access their medical records with an online tool, only about 20 000 people have joined the system. Access to a computer was mentioned as one of the barriers; more importantly, patients are poorly informed about the possibility, and they have to apply for the access. Patients would be better empowered if they could get the access automatically and then be guided in using the online tool.

Linkage of e-solutions and access by both professionals and patients would be facilitated by attribution of unique personal identification numbers. Currently, different systems use different identification numbers, so that a person cannot easily be identified in different systems. Management of multiple identification numbers is a burden for both service developers and patients. One identification would engage patients in accessing the information available to them, and service developers could provide integrated information solutions. Importantly, data from different sources could be linked, providing more analytical power, which could be used in care management and policy development.

Challenge 14: Managing change

In all areas, overcoming obstacles requires skill in managing change. Strengthening intersectoral cooperation is one of the most important areas for the management of change.

The Government has demonstrated commitment and support to health care reform. Primary health care has been given priority, and national programmes on tobacco and alcohol have been adopted. Given the difficult political and economic situation of the country, the level of funding for health programmes may change.

For NCD control, it will be critical to strengthen public health and intersectoral cooperation. Strengthening intersectoral cooperation is the most important area for change management.

The engagement of health professionals and representatives of the general public in policy development could be strengthened and extended. Health professionals voiced that they are often consulted too late in the policy development process or not at all. This has led to a feeling of dis-empowerment and lack of motivation. It seems that while the Ministry of Health could engage health professionals more, the medical associations were not filling their role in linking practitioners and the ministry either. Recently, the Ministry of Health opened an online platform in cooperation with the WHO Country Office as part of the national Health 2020 development

agenda in order to improve information sharing and engagement of health professionals, patients and general public.

Information-sharing could also be improved within the Ministry of Health, with streamlining of the organizational structure and work processes. As indicated earlier, the organizational structure of the Ministry is fragmented and stewardship function could be strengthened. Hence, it is difficult to solve problems that comprise many health system functions; e.g. development of family medicine calls for simultaneous reforms in health care financing and management, resource generation and reallocation, training and curricula.

Reforms have been inconsistent and non-systematic. For example, the reform on family medicine might have been hampered by the introduction of rural doctors. A comprehensive primary care reform would have included solutions to remove all barriers from the training of family doctors, creation of family practices and information exchange among different levels of care. Similarly, there is little reason to increase the managerial autonomy of public health care providers for only selected management areas, while autonomy is withheld in others, such as human resource management. This complicates the situation further, instead of improving it.

Challenge 15: Ensuring access and financial protection

Health is a priority in overall public expenditure, representing 14% of GDP in 2012; however, private expenditure at the point of service was 36% in the same year, which could represent a significant deterrent to service use. Given the weak coordination of care, the population bears an unnecessary financial burden. The current system of public and private health care providers places lower socio-economic groups at an additional disadvantage, although a number of disadvantaged and at-risk groups have been granted certain benefits and exemptions to increase their financial protection.

Health is a priority on the Government agenda, representing 14% of total public expenditure in the country, which is similar to that in European Union countries. There are, however, no surveys or other information on barriers to the use of care, reasons for lack of use of services or use of specific services according to socio-economic group.

Private expenditure at the point of service is a significant financial burden for the population. Private expenditure (mainly various co-payments) decreased from 42% of total health expenditure in 2000 to 31% in 2008 but increased again to 36% in 2012. Out-of-pocket payment is widespread. For example, while no co-payment is due for regular visits in primary care, injections and other procedures incur 10% co-payment, and all services in secondary and tertiary care incur co-payments of 10%. Medications on the drug list required 80% co-payment until 2012, when the rate was lowered to 25%. Private service provision is common in several areas of health care, such as rehabilitation and long-term and palliative care, further increasing out-of-pocket payments. Private expenditure is much higher than in the European Union, where the average in 2012 was 16%. A number of disadvantaged and at-risk groups have been granted certain benefits and exemptions to increase their financial protection from catastrophic health expenditures and financial barriers to care due to out-of-pocket payments; however, no studies are available on these topics.

Financial risk is increased by weak primary care and care coordination. According to national experts, approximately 40% of referrals to secondary and tertiary care are unnecessary. These referrals, however, usually entail co-payments and other costs related to the service, such as travel and time taken off work. The financial burden on patients, especially those in lower socio-economic groups, could be lightened by strengthening primary care and care coordination and generally increasing the effectiveness of the health care system.

The current system of public and private health care providers places lower socio-economic groups at an additional disadvantage. People in higher socio-economic groups can jump queues and access better-quality services that are later reimbursed by their health insurance, while people without such means are left with lower-quality service and longer waiting times, with adverse effects on their health.

4. Innovations and good practice

The former Yugoslav Republic of Macedonia has a good platform for developing its NCD care and management system. The country also has extensive experience in conducting reform and, most importantly, has shown a strong desire and dedication to improve the health care system and strengthen the prevention, management and treatment of NCDs. This section briefly summarizes some aspects of the health system that are could form the basis for further development.

The current legislative situation and practices provide a solid foundation. For example, laws have been adopted on tobacco control, fiscal policies and taxation, which are implemented in a national anti-smoking programme. Numerous other programmes help to implement policies in practical terms. Clear principles have been laid down for health system financing, with independent health insurance as a strategic purchaser, for continuous strengthening of health care service provision, including the introduction of family medicine at the centre of health care system.

The country is strongly motivated to build the best possible health system, with champions leading the work. Throughout the assessment visit, a strong will was expressed to keep improving the system. People proposed ideas on improving population health and, even more importantly, assumed personal leadership for promoting their ideas by example.

The Government is willing to improve the functioning of the health system, particularly for NCDs. The Government is committed to create a comprehensive NCD policy and action plan, as illustrated by this assessment. Commitment by the Government will allow integration of the best evidence and ideas for improving the NCD situation, empowering all the people, including NCD champions, to act together.

Self-assessment of public health services has provided good information for strengthening the prevention of NCDs and their risk factors. This self-assessment was conducted with WHO guidelines, in which all the essential operations (functions) of public health systems are analysed in detail. This assessment provides clear suggestions for increasing the impact of the current public health system and improving its effectiveness.

Existing platforms for intersectoral collaboration (e.g. the national Committee for Health and Environment) could be extended to the area of NCDs. Until now, intersectoral collaboration on health topics at Government level has been mainly ad hoc and closely linked to the personal interests of the participants. The experience gained from intersectoral collaboration can inform systematic engagement of other sectors in “health in all policies” in a unified front against NCDs. Current intersectoral collaboration could also be strengthened by creating long-term policy agendas and dedicated secretariats.

Computerization of the health care system has been remarkable and could be used to form a fascinating, innovative health information system. Central provision of software to service providers, real-time collection of data, the wealth of the collected data, public overview of the collected data and the absence of existing systems that have to be re-built are only some of the features that make an excellent platform for further development. Increased data linkage and analysis and increased engagement of patients in their care solutions are the main possibilities for increasing the usefulness and impact of current information solutions.



5. Policy recommendations

This section lists the recommendations based on the findings of the mission and the discussions at the final workshop. The policy recommendations are grouped around four main themes. First, strengthened governance and coordination and strengthened governance mechanisms for NCDs could create a clearer framework and direction for activities to prevent and reduce the burden of NCDs. Secondly, investing in strengthening the evidence base and evidence-based interventions and services will help to target activities and ensure that the best possible health outcomes are achieved with the available resources. Thirdly, patients are an often underused resource in traditional health system; thus, investing in population and patient empowerment will increase self-management capacity, thus reducing the burden on the health system and at the same time making the health system more responsive to population needs. Finally, optimizing models of care, aligning incentives between and within levels of care and creating a system of continuous quality improvement could improve the continuity and quality of care and the use of available resources, ultimately leading to better health outcomes.

5.1 Strengthen governance and coordination mechanisms

Set clear targets for NCDs, and create a policy for achieving them. Targets and policy could either be part of a separate NCD strategy or included in existing policies; however, it is important that the vision for improving population health in the area of NCDs include a clear process for selecting and planning targeted actions. The policy must also be backed with adequate resources that are explicitly linked to the strategic objectives. Moreover, a monitoring and evaluation framework with indicators of the target achievements and evidence-based management of policy actions is essential. Ideally, the targets of the NCD policy should be consistent with those of the global monitoring framework.

Institutionalize the NCD committee as part of the policy, and provide it with technical secretariat support. Although the intersectoral NCD committee was established in 2012, it is not clear whether it has had an impact on the NCD situation. This committee should have a clear role and mandate in preparing policy and the tools for implementing it. For example, the committee could initiate NCD policy planning with intersectoral collaboration and could later be the formal body for steering implementation. It should consist of representatives of various sectors, the general public, the scientific community and other interested parties and ensure that all sectors and parties deliver the actions of the NCD policy. Support in preparing policy propositions and progress reports could be provided e.g. by the Ministry of Health. To give the NCD committee more strength in intersectoral action, it could be chaired by the Prime Minister.

Prepare clear criteria for selecting priorities and actions when developing the policy. If clear criteria for selecting priorities and actions are not in place, are not clear enough or are not followed, it will be difficult to target policies and select the actions that are the most suitable for achieving the targets. In such situations, the actions taken tend to have a deteriorating impact and often fail to achieve the desired outcomes, as they are not aligned or simply do not work. An example of possible criteria for priority actions is their effectiveness and cost-effectiveness, i.e. whether they have an effect and whether the maximum impact can be achieved within a limited budget. Hence, good scientific evidence on effectiveness and cost-effectiveness of the planned activities could be required in the policy to maximize use of the available resources for population health improvement.

Increase the governance role of the Ministry of Health as the steward of the health system. As described above, the current function of the Ministry of Health is mainly to control (e.g. making staffing decisions for public institutions like hospitals) and administer (e.g. collecting and checking invoices); it has little capacity to fulfil its governance and stewardship function. By giving greater managerial autonomy to public institutions like hospitals and the HIF, the Ministry of Health could allocate more time and resources to preparing policy and legislation to provide guidance to those institutions. This would also allow better integration and alignment of existing policies for more

systematic, comprehensive coordination of actions. At the same time, greater autonomy of public institutions with clearly defined roles, responsibilities and goals due to the stronger stewardship function of the Ministry of Health could increase the efficiency of public sector institutions and improve population health within a more systematic, comprehensive policy framework.

Strengthen coordination and collaboration within the Ministry of Health. The Ministry is currently highly fragmented (21 units at the time of the review), with unnecessary divisions between policy topics that could and should be integrated. For example, health care is divided into units for health insurance, primary care, hospital care, dental care and others. Questions of funding enter almost every decision on the organization of health care, and all decisions on primary care affect both specialist care and health insurance. Hence, more unity is required in policy development to make it more comprehensive, including all the aspects currently spread over different departments. One solution would be to merge some departments, bringing specialists closer together and giving department heads wider areas of responsibility where they can ensure integrated policy development. Another possibility would be to institutionalize flexible temporary teams across departments, which would work together to cover different aspects of the whole in an aligned manner, while formal departments increasingly provide only administrative support for these teams.

Extend the participation of the public and of civil society organizations in policy development and management of public institutions. It is important to engage the public in policy development from the earliest stages, when the first problem statements and possible solutions are discussed. Population satisfaction surveys and focus groups could be used to identify the causes of any problems and hence enable better targeting of policy actions. Extended public engagement can also ensure agreement on major policy changes.

Improve the engagement of other sectors in policy development and implementation of actions. The inclusion of representatives of other sectors in the NCD policy development committee and making members of the committee responsible for the actions agreed in the committee in their respective sectors is already partly implemented. At a local level, the membership of the public health councils might be broadened to include other sectors. Another way to engage other sectors would be to describe their impact on population health (e.g. the number of deaths prevented by rescue services and the police, which have helped to increase national life expectancy) or how their work on improving population health could benefit their own sector (e.g. the extent to which taxes on trans fats or sugar could improve workforce productivity and hence increase the funds available for the State budget).

5.2 Invest in strengthening the evidence base and implementing evidence-based actions

Conduct regular surveys of population health and risk factors to create an NCD surveillance system. There is little information on the distribution or levels of population health, health behaviour or health risks in the country. This has created a situation in which policy action is decided and implemented at least partly in a vacuum. Conducting regular international population health surveys and creating national ones to complement them will provide a good base for allocating scarce resources to areas in which the most benefit can be expected (e.g. focus on specific population groups rather than the whole population, select some narrow disease areas rather than the entire spectrum). Such surveys also provide an opportunity to measure the impact of actions and thus determine which worked and should be continued or extended and which should be discontinued.

Expand the e-health system to record clinical outcomes and to analyse and use the information with existing data. For example, an electronic tool is available for calculating CVD risk scores, which could be recorded centrally for each patient. Other outcome data (e.g. blood pressure, glucose levels and results of other tests and measurements) could be recorded in the e-health system for analysis of population health. Combining clinical data with, for example, socio-economic status or residence, would increase the performance of the health care system by ensuring that the groups in greatest need have access to the appropriate services.

Use available data to its fullest potential, and create new evidence. Data on clinical activities could be used not only to improve service performance and ensure access to services but could be further analysed to “track” patients through levels of care and service providers in order to find ways to optimize the patient pathway through the health care system and to improve the continuity of care by minimizing the number of contacts. Many other sources of data in health and other sectors could be used for better planning, actions and services to improve population health.

Use evidence to support innovation and improvement instead of control and punishment. Evidence is used most effectively to support learning and improvement. In combination with personal and institutional autonomy and leadership, the ground is prepared for innovation for better health system performance and population health outcomes. Use of evidence for control and punishment can lead to data falsification and similar problems, which lead to reduced performance.

Create a knowledge centre of systematic reviews, guidelines and best evidence for action. As recommended above, clear criteria should be set for selecting priorities. It is accepted internationally that there should be strong evidence for the effectiveness and cost-effectiveness of all actions. The former Yugoslav Republic of Macedonia has attempted to base actions on guidelines but with little or no contextualization for national needs and no measurement of the impact of the actions. Adaptation of international evidence nationally is important, as contexts often differ significantly; lack of adaptation can lead to poor performance or even undesired outcomes. Hence, capacity should be built for conducting systematic reviews and adapting international evidence on e.g. actions, services, interventions and guidelines for use in accordance with the peculiarities of the health system. A “knowledge centre” for such activities could be established in a public institution or university to acquire the data necessary for planning and selecting evidence-based actions for policy development.

Strengthen and expand human resources and competence in evidence creation and use. The intersectoral agenda for NCDs includes collecting information, creating information support tools for policy-makers, medical professionals and the general public, conducting systematic reviews, contextualizing international evidence, preparing clinical guidelines, documenting the impact of NCDs on the economy, assessing the health impact of policies in other sectors and evidence-based strategic management.

Increase the use and enforcement of internationally recognized best practices to address alcohol and tobacco use. Several best practices could be implemented more extensively, and several interventions (such as a ban on smoking on public premises) could be better enforced to achieve the potential benefit of these interventions for population health. Major gains could be made through low-cost but effective interventions for reducing smoking and alcohol consumption.

Accelerate action against obesity and nutrition risk factors for NCDs. More could also be done in the area of nutrition and obesity, such as national action to reduce salt in food and measures to reduce marketing of unhealthy food and beverages to children.

5.3 Empower the population and patients

Devise self-management tools for patients, and provide training. Patients can largely manage NCDs in their early stages, if they have been trained and are given support. For example, nurse-led foot clinics for diabetes patients can be used to provide training in the prevention and care of lesions on the feet, which often require amputation if not controlled. Self-management tools include information materials, management guidelines and equipment such as for glucose or blood pressure measurement. When patient self-management is used extensively, according to international best practice, the burden on health care providers can be reduced significantly.

Create a unified policy on improving population health literacy, and provide adequate education tools. In clinical settings, patients receive information mainly from leaflets, although the resources for their reproduction appear to be lacking. Creation of a unified policy on population and health literacy could be considered with the available education tools and new

ones that provide comprehensive information on all the main diseases and patient groups. Other forms of education could also be considered, such as a menu in the health information system in which patients could find information on their health risk factors linked to data from their medical records.

Extend and improve access to personal medical records, and provide additional information tools. An online portal for access to personal medical records has been set up, but there are several barriers to access. The probability of patients accessing their medical records would be significantly increased if they did not have to request access to the portal; access should be provided automatically, with secure authentication tools for login. Use of the portal and access to personal data could be promoted in dedicated campaigns. The portal would be more useful to patients if various tools were added, such as health education and information linked to the patient's health status, analysis of the patient's prognosis during disease progression, patient forums for exchanging experience and information or linkage to health behaviour data from personal applications with medical records.

Support patient organizations, and engage them in policy development. Patient organizations can add value to policy discussions, for instance by clarifying needs and expectations and proposing solutions to challenges. Support to patient organizations could include financial input to ensure their sustainability and improving their capacity so they are equal partners with professional organizations and policy-makers.

Support peer-to-peer training, counselling and support of NCD patients. Patient organizations are well placed to reduce the burden on service providers of patient education and training. Patients are experts in their disease, and, by sharing their experience with patients with newly diagnosed disease, they can significantly reduce the learning and coping time. For example, cooking classes for patients with diabetes and support in coping with acute episodes of the disease should be supported by resources such as premises for training, funding for supporters and setting up online forums to connect patients.

Consider instituting a patient-centred health system. Patients are a large unused resource for self-management and support to other patients. The primary care system should be used to ensure that patients are in the best position to help themselves and others. In a truly patient-centred health system, primary care would support patients in managing their condition by providing preventive and health promotion services, organizing the process of care between the different levels of care and care providers, sending reminders for appointments, checking and reminding patients about medication and doing as much as possible to prevent increasing disease severity and thus the need for specialist care.

5.4 Optimize models of care, align incentives, and establish continuous quality improvement mechanisms

Empower primary care professionals to use their full potential in the prevention and control of NCDs in order to improve health outcomes and reduce the burden of specialist care. Several factors should be tackled at the same time in a comprehensive, systematic approach. For example, primary care doctors could be made more autonomous by reducing the list of conditions for which they are required to refer patients to specialist care. The payment schemes at all levels of care could be changed to motivate doctors to manage patients in primary health care and to ensure that specialists have no financial incentives to keep patients at their level. Doctors in primary care could be given better information about patient outcomes. Campaigns could be run to raise the status of primary care, financial barriers to specialization in family medicine could be removed, and patient lists could be given to new primary care providers with financial and other support for starting a practice. Further, additional training on patient management and disease prevention could be provided systematically (see below).

Improve the continuity and coordination of care for NCDs. One way to improve the continuity of care would be to appoint an authority with oversight for controlling and coordinating the

entire process through to the health outcomes of patients, with the necessary tools and resources. Primary care doctors could and should be responsible for the patients on their list. This would be feasible, however, only if these doctors are truly at the centre of the health care system and are empowered. Many tools other than those listed above could be provided, such as information technology to allow primary care doctors full oversight of the care process of their patients through all levels of care, which could be extended so that patients with NCDs could add information on their health status for review by the doctor. Similar tools could be considered for improving the links between primary care, health centres and specialist care.

Prepare patient management guidelines, patient pathways and discharge management procedures, in addition to clinical guidelines. Discharge management procedures ensure that the required information reaches the next health care provider and is used to ensure continuity and oversight of the care process by the primary care doctor. Patient pathways are the most common, effective stages through which patients navigate the health care system according to their condition. Patient management guidelines give health professionals best practices for managing and coordinating the care process. Such guidelines should be based on best international and national evidence in collaboration with policy-makers, professional groups, patient organizations and researchers.

Increase the capacity of nurses in NCD prevention and control by extending their responsibilities and autonomy, while shifting administrative tasks to clerical staff where possible. Both doctors and nurses are currently overburdened with administrative tasks, some of which could be delegated to non-medical staff. For example, patient registration and reception and cashier tasks do not require nurses. Shifting of tasks can free physicians and nurses to focus on prevention and care.

Extend and facilitate professional development for NCD prevention and control in both clinical and managerial settings. The continuing medical education system should be aligned with national health system priorities. For example, more focus should be put on health promotion and disease prevention and management, and theoretical and practical training should be combined and further supported by post-training supervision to ensure correct application of the new skills in practice. The volume of continuing medical education should be increased to reach full coverage of target professionals, and resources should be allocated to remove the financial barriers.

Enhance teamwork and an integrated approach to NCDs in the community, and engage patronage nurses. This is especially important for hard-to-reach and vulnerable groups and regions with socioeconomic status below the average.

Establish internal mechanisms to enhance the quality of primary and specialist outpatient care, as for inpatient care. Access to and provision of care do not improve health if the quality of the service is poor. National quality criteria and internal quality improvement mechanisms should be created to ensure continuous improvement of care. Such internal mechanisms could be promoted and supported in addition to the existing quality inspection system. Health care service providers have already accumulated a wealth of data on various aspects of their activities, which could be used to devise a quality monitoring system that could be extended by introducing new, dedicated indicators.

Use incentives, positive rewards and peer-to-peer learning to foster a culture of continuous quality improvement focusing on outcomes. Positive incentives and support for improving care should be used, as indicated in the recommendations on evidence-based medicine and policies. Setting evidence-based preventive and care management goals and linking them to performance incentives (e.g. in primary care) will require collaboration among service purchasers, policy-makers and health professionals to ensure the agreement and support of specialists. Provision of patient outcome data and support for training could further motivate service providers to improve their performance. A peer-to-peer learning system for health care service providers would allow them to learn from good examples in the system, consult other providers on similar problems and share burdens. Peer-to-peer learning is possible when it is associated with positive incentives.

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Annex 1. Data sources and methods

The principal source of data on demographic and health-related indicators for this report was the European Health for All database (WHO Regional Office for Europe, 2014). Most of the data were for 1980–1990 and 2009–2010. The indicators were selected for analysis on the basis of expert recommendations and practical consideration of what was available.

We used estimates and projections from data reported annually in the 53 Member States of the WHO European Region. The following country subgroups, as defined in the European Health for All database, were used to distinguish regional trends:

- European Union-15: the 15 Member States in the European Union on 1 May 2004: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom;
- European Union-12: the 12 Member States that joined the European Union in May 2004 or January 2007: Bulgaria, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia; and
- the Commonwealth of Independent States until 2006: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, the Republic of Moldova, the Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

The countries in the European Region that are not in these groups are: Albania, Andorra, Bosnia and Herzegovina, Croatia, Iceland, Israel, Monaco, Montenegro, Norway, San Marino, Serbia, Switzerland, the former Yugoslav Republic of Macedonia and Turkey.

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Annex 2. Criteria for scoring tobacco, alcohol and nutrition-related interventions

Table A2.1. Tobacco control: summary of core service coverage

| Range of antismoking interventions (WHO Framework Convention on Tobacco Control) | Prevalence among adults > 30% | Prevalence among adults 18–20% | Prevalence among adults < 18% |
|--|--|--|--|
| Raising tobacco taxes | Tax is < 25% of the retail price. | Tax is 25–75% of the retail price | Tax is > 75% of the retail price |
| Smoke-free environments | 100% smoke-free environment enforced only in schools and hospitals | 100% smoke-free environment enforced in hospitals, schools, universities, public transport and workplaces | 100% smoke-free environment enforced in all public places, including hospitality sector |
| Warnings on the dangers of tobacco and smoking | Warning labels required on tobacco products (size not specified) | Warning labels required on all tobacco products covering ≥ 30% (front and back) | Warning labels required to cover > 50% (front and back), with graphics (standardized packaging) |
| Bans on advertising, promotion and sponsorship | No bans on national television, radio or in print | Ban on direct and indirect advertising and promotion | Ban on all advertising and promotion, including at points of sale, with effective enforcement |
| Quit-lines and nicotine replacement therapy* | No quit lines; Government-funded cessation services, with nicotine replacement therapy allowed if paid in full by the individual | Quit lines; Government-funded cessation services available (possibly with payment by the individual); nicotine replacement therapy available if paid in full by the individual | Free-of-charge quit line, with cessation services and nicotine replacement therapy available and affordable (covered at least partially) |

*Additional criteria not included in the *Global Action Plan*
Source: WHO Regional Office for Europe (2014)



Table A2.2. Interventions to prevent harmful use of alcohol: summary of core service coverage

| | | | |
|---|---|--|--|
| Raising taxes on alcohol | Alcohol taxes follow price index | Alcohol taxes follow price index, with special taxes on products attractive to young people | Alcohol taxes follow price index and are related to alcohol content, including special taxes on products attractive to young people |
| Restrictions or bans on advertising and promotion | Regulatory framework regulates the content and volume of alcohol marketing | Regulatory framework regulates the content and volume of alcohol marketing, including direct and indirect marketing and sponsorship | Full ban on alcohol marketing of any kind |
| Restrictions on retail availability of alcohol | Regulatory framework exists on serving alcohol in government and educational institutions | Regulatory framework exists on serving alcohol in government institutions, and serving alcohol is banned in educational institutions | All governmental and educational institutions must be alcohol free |
| Minimum purchase age regulation and enforcement* | Minimum age for purchasing all alcohol products is 18 years | Minimum age for purchasing all alcohol products is 18 years, and effective enforcement measures are in place | Minimum age for purchasing all alcohol products is 18 years, effective enforcement measures are in place and loss of licence for illegally selling alcohol to people aged < 18 years |
| Allowed blood alcohol content for driving | Maximum of 0.5 g/L | Maximum of 0.5 g/L and 0 for learning and professional drivers | Maximum of 0.2 g/L and 0 for learning and professional drivers |
| Multi-sector policy development* | Multi-sector national strategy on alcohol policy | Multi-sector national strategy and a coordinating council on alcohol policy | Multi-sector national strategy, a coordinating council on alcohol policy and an adequately resourced nongovernmental sector, free of potential conflict of interest with public health |

*Additional criteria not included in the *Global Action Plan*
 Source: WHO Regional Office for Europe (2014)



Table A2.3. Diet and nutrition: summary of core service coverage

| Interventions to improve diet and physical activity | Prevalence of overweight and obesity in children and adults (pre-obesity and obesity) is $\geq 30\%$ | Prevalence of overweight and obesity in children and adults (pre-obesity and obesity) is 20–30% | Prevalence of overweight and obesity in children and adults (pre-obesity and obesity) is $< 20\%$ |
|--|--|--|--|
| Reducing salt intake and salt content of foods | $\leq 10\%$ reduction of salt intake has been registered since the mid-2000s | Salt intake has been reduced by $\geq 10\%$ since the mid-2000s | Salt intake has been reduced by $> 10\%$ since the mid-2000s |
| Virtual elimination of trans-fatty acids from the diet | No evidence that trans-fats have been significantly reduced in the diet | Trans-fats have been reduced in some food categories and in certain industries but not overall | Trans-fats are virtually eliminated from the food chain through government legislation and/or self-regulation |
| Reducing free sugar** intake* | Reduction of the intake of free sugars** is mentioned in policy documents, but no action has been taken | Reduction of the intake of free sugars** by 5% is mentioned in policy documents and partially achieved in certain food categories | Reduction of the intake of free sugars** by 5% is monitored, with a focus on sugar-sweetened beverages |
| Increasing intake of fruit and vegetables* | The aim to increase consumption in fruit and vegetables is mentioned, but no monitoring data have been collected | The aim to increase consumption of fruit and vegetables is in line with the WHO/FAO recommendations of ≥ 400 g/day, and some initiatives exist to this effect | The aim to increase consumption of fruit and vegetables is in line with the WHO/FAO recommendations of ≥ 400 g/day, with population initiatives in place and incentives to increase availability, affordability and accessibility |
| Reducing marketing pressure on children to consume food and non-alcoholic beverages* | Marketing of foods and beverages to children is noted as a problem, but no specific action has been translated into government-led initiatives | WHO recommendations on marketing are acknowledged and steps have been taken for self-regulation to reduce marketing pressure on children | WHO recommendations on marketing and a framework for implementation are followed consistently, including a mechanism for monitoring |
| Promoting awareness about diet and activity | No workforce development for nutrition and physical activity, and nutrition and physical activity are not priorities in primary care | Some workforce has been developed for nutrition and physical activity; nutrition and physical activity are considered priorities in primary care | A workforce has been developed for nutrition and physical activity, and nutrition and physical activity are a priorities in primary care |

* Additional criteria not included in the *Global Action Plan*

** Free sugars are monosaccharides (such as glucose, fructose) and disaccharides (such as sucrose or table sugar).

Source: WHO Regional Office for Europe (2014).

Reference

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The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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