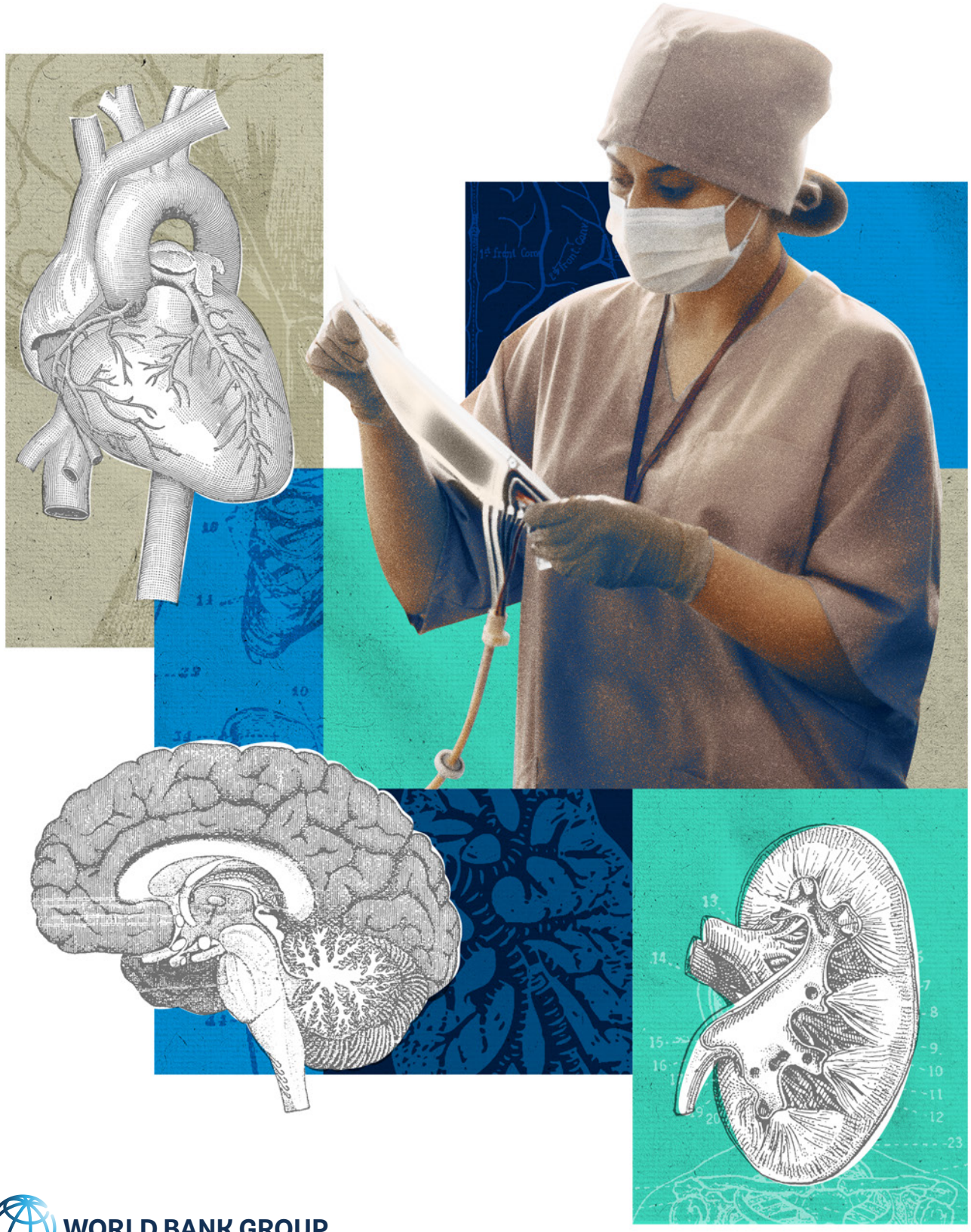

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The state of noncommunicable diseases in Kosovo

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May 2023

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ACRONYMS

ABV	Alcohol by volume
ACS	American Cancer Society
AMC	Action for Mothers and Children
AQAP	Air Quality Action Plan
AQH	Access Quality Healthcare
CMHC	Community mental health centers
COI	Cost-of-illness
CVD	Cardiovascular disease
DALYSs	Disability-adjusted life years
ECA	Europe and Central Asia
EU	European Union
GYTS	Global Youth Tobacco Survey
HBS	Household budget survey
HC	Human capital
HIS	Health Information System
HPV	Human papilloma virus
I$	International dollar
IHME	Institute of Health Metrics and Evaluation
IT	Information technology
KAS	Kosovo Agency of Statistics
KHUCS	Kosovo Hospital and University Clinical Services
LAPP	Law on Air Protection for Pollution
LEP	Law on Environmental Protection
LMICs	Low- and middle-income countries
MD	Major depression
MDD	Minimum dietary diversity
MESP	Ministry of Environment and Spatial Planning
MoH	Ministry of Health
NCDs	Noncommunicable diseases
NIPH	National Institute of Public Health
OOP	Out-of-pocket
PCI	Primary Care International
PTSD	Post-traumatic stress disorder
QALYs	Quality-adjusted life years
SSBs	Sugar-weetened beverages
STC-SEE	Survey on Tobacco Consumption in Southeastern European countries
STEPS	STEPwise approach to surveillance
UCCK	University Clinical Center Kosovo
UNFPA	United Nations Population Fund
WHO	World Health Organization

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EXECUTIVE SUMMARY

Kosovo has witnessed significant economic and human capital growth since its independence in 2008; however, the increasing burden of noncommunicable diseases (NCDs) demands urgent actions to accelerate Kosovo's growth. Noncommunicable diseases, mainly cardiovascular diseases, cancer, and diabetes are affecting Kosovars while the country is still working on building a strong healthcare system. This report provides a comprehensive evaluation of the mortality, prevalence, incidence, risk factors, and economic impact of NCDs in Kosovo. The report also provides key actions to proactively address NCDs in Kosovo and accelerate the country's economic and human capital growth.

The increasing burden of NCDs is already threatening the lives of young adults, while actions to reduce the risk factors are scarce. NCDs are the leading cause of death, representing over two-thirds of all deaths. These conditions are not only affecting the elderly, as more than a quarter of deaths among the 20–29 age group are due to NCDs. Despite these alarming numbers, the actions to reduce risk factors associated with the development of chronic conditions have been fractional. Screening programs are scarce in the country, while policies to reduce exposure to harmful products, such as tobacco and alcohol consumption, do not align with the best international practices. Moreover, the high levels of air pollution are a threat not only to the people of Kosovo but for neighboring countries, increasing the risk of chronic respiratory diseases.

Management of chronic conditions fails to meet the population's health needs, especially for the most vulnerable. At the macro level, the lack of standardized clinical protocols for a majority of NCDs leaves healthcare workers unable to adhere to evidence-based service provision. Hospitals face constant shortages in the supply of drugs and medical equipment, reducing their capacity to deliver effective care. At the organizational level, institutions have a constrained healthcare workforce. It is commonly reported that the already limited number of health professionals engage in dual practice, which further weakens the system's delivery capacity. At the micro (clinical team) level, users report dissatisfaction when accessing healthcare, leading them to rely on the private sector to meet their health needs. Informal payments are prevalent and are used by patients under the perception that they will receive better care. Moreover, patients from the Roma, Ashkali, and Egyptian communities are more vulnerable to accessing healthcare, creating additional barriers to living a healthy life.

The burden and economic impact of NCDs call for urgent actions to protect the human capital of current and future generations. The rising burden of NCDs is accompanied by significant healthcare and indirect costs – premature deaths or disability. The current status of NCDs and their economic impact in Kosovo emphasizes the need to build a health system that addresses the risk factors for chronic conditions while effectively managing NCDs to reduce their financial burden. To achieve this goal, the report proposes the following recommendations:

- **Implement a rigorous national campaign on the prevention of smoking, particularly among the youth.** Learning from successful campaigns in other countries can provide the basis for a national campaign to reduce smoking.
- **Develop condition-specific registries to improve data quality and monitoring of NCDs.** The existing cancer registry has been implemented by law and is satisfactorily followed by healthcare staff at regional hospitals and the National Institute of Public Health. Adopting a similar process for major NCDs such as diabetes and hypertension is necessary.

- **Implement lists of patients at primary care facilities for better prevention and control of NCDs.** Assigning patients to a specific healthcare facility will improve the screening and management of chronic conditions, as well as strengthen the role of PHCs as gatekeepers of care.
- **Extend the national pilot screening programs on breast and cervical cancer throughout the country.** The current programs have increased the number of women screened for breast and cervical cancer, but the majority of eligible women remain unscreened. Expanding the program throughout the country will reflect an increased share of eligible women benefiting from early detection of cervical cancer and a better prognosis.
- **Develop an integrated information system across healthcare institutions to improve care coordination.** Ensuring that healthcare professionals have access to a patient's record will improve health outcomes and increase care coordination.
- **Develop standardized clinical protocols for the prevention and treatment of NCDs and build the infrastructure to provide evidence-based care.** Standardizing NCD care through developing clinical guidelines will ensure everyone benefits from the same care. Equipping health facilities with resources to implement standardized protocols is important to ensure adherence to standardized care. Clinical audits for implementing the protocols should be embedded as a regular practice. Empowerment and accountability mechanisms for quality care coordinators across health facilities is also of high importance.
- **Enhance the monitoring and enforcement of policies to reduce tobacco and alcohol consumption while increasing taxes on harmful products to international standards.** Ensuring that the current policies are adequately enforced while tying them to international standards will reduce the impact of harmful products and bring economic and human capital development benefits.
- **Develop strategic planning for human resources for health to improve attraction and retention of healthcare workers.** Creating a strategic plan, considering current and future population health needs, and addressing healthcare workers' concerns for their professional practice will increase the attraction and retention of human resources for health.
- **Build service capacity and increase access to mental health care.** Especially for the most vulnerable populations and those with a higher risk of mental illness, the health system should ensure that enough mental health professionals are available. Planning should address how to meet future health needs and respond to emerging trends.
- **Accelerate the implementation of air quality plans to reduce exposure to harmful concentrations of air pollutants.** Currently, air quality regulations adhere to European standards but have not yet been fully implemented. Increasing the technical capacity and financial resources to implement these plans will result in cleaner air and healthier Kosovars.
- **Advance health financing reforms to enable adequate resources and strategic purchasing for quality services.** Health financing reforms in Kosovo could start immediately with some pilots to introduce the concept of strategic purchasing to deliver concrete benefits to the population. One such pilot could be an introduction of the outpatient drugs benefit package, which could significantly improve adherence to treatment regimen for patients with chronic diseases.

Introduction

Noncommunicable diseases (NCDs) are the leading cause of death worldwide and have a direct effect on a country's economic growth. Almost 90 percent of these deaths occur in low- and middle-income countries (LMICs), with four major conditions accounting for over 85 percent of deaths: cardiovascular disease (CVD), cancer, chronic obstructive pulmonary diseases, and diabetes (World Health Organization, WHO n.d.). The burden of NCDs is expected to continue to increase in the coming years, imposing major strains on health systems and hindering economic development. It is estimated that every 10 percent increase in mortality due to NCDs reduces economic growth by 0.5 percent (Jakab 2018).

NCDs can be effectively prevented through a comprehensive approach to tackling the main risk factors. It is estimated that 80 percent of heart disease, stroke, and diabetes, and 40 percent of cancer could be prevented by addressing the main risk factors – tobacco and alcohol use, unhealthy diets, physical inactivity, hypertension, obesity, and environmental factors (WHO Regional Office for Europe 2016). Tackling these risk factors requires a comprehensive approach involving policies such as increasing taxes for harmful products, implementing effective screening programs, and developing spaces that foster physical activity and promote a healthy diet (Mendis 2010).

The picture of the burden of NCDs in Kosovo remains blurred, and the applicability of available literature is limited. Till now, no comprehensive report has been prepared that evaluates the burden of NCDs in Kosovo. In the same vein, although there have been published reports from neighboring countries and similar peers, this applicability remains limited due to Kosovo's unique challenges and characteristics. Evaluating the health and financial burden imposed by NCDs in Kosovo will provide a clearer picture and facilitate the prioritization of recommendations to protect and increase the country's human capital.

ABOUT THIS REPORT

This report, which aims to raise awareness, identify gaps, and inform policies, is the first comprehensive report on NCDs in Kosovo. Unlike available studies, the present work explores multiple aspects of NCDs, including their burden on health outcomes, risk factors, management, economic burden, and policies introduced to protect the population from these conditions. The report's findings are based on data from existing literature, official documents such as laws, regulations, and protocols, secondary data analysis, and interviews with key informants. The report presents comparisons with available data from the Western Balkans (Albania, Bosnia and Herzegovina [BiH], Montenegro, North Macedonia, and Serbia), aspirational (former socialist, small European Union member states such as Croatia, Estonia, Latvia, Lithuania, and Slovenia) and structural peers[1] (Albania, Armenia, Moldova, North Macedonia, and Kyrgyz Republic) to contextualize the findings. The report concludes by providing recommendations to reduce the burden of NCDs in Kosovo to protect the human capital of current and future generations.

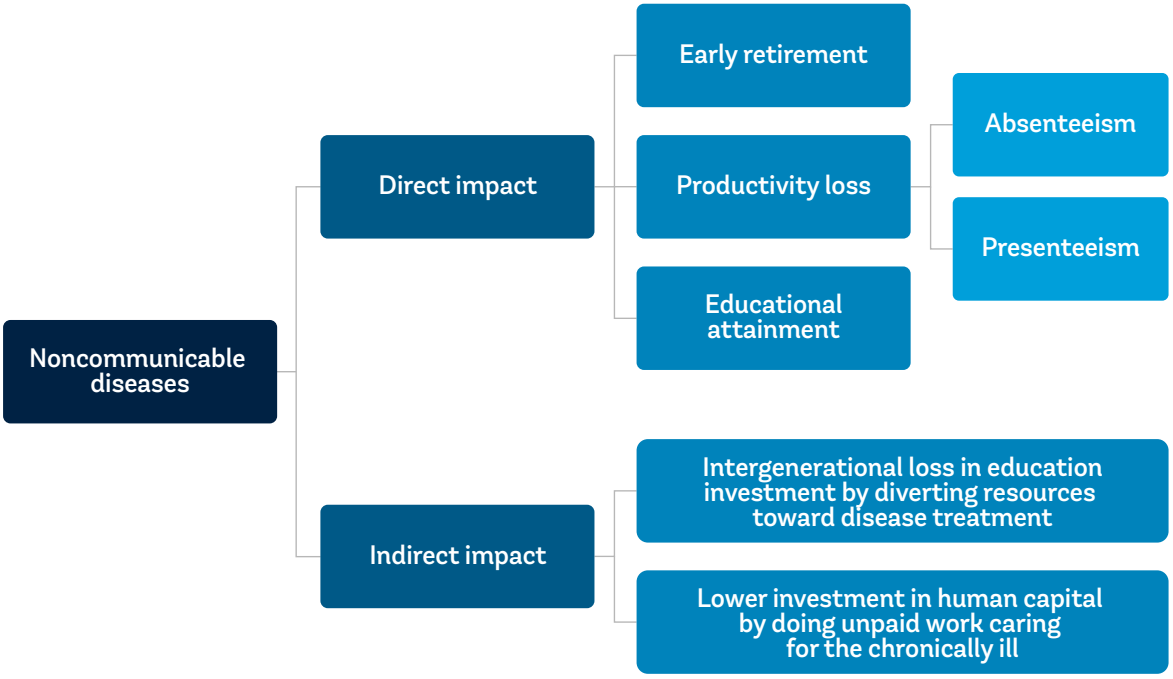
1 The definition of structural peer is based on (i) GDP per capita (in constant 2010 US$); (ii) poverty headcount ratio at $1.90 per day, 2011 PPP (% population); (iii) total population; (iv) agriculture, value added (% of GDP): (v) Human Capital Index (0-1); and (vi) control of corruption.

NCDs Hamper the Development of Human Capital for both Current and Future Generations

NCDs decrease human capital through direct and indirect impacts. Human capital refers to people's knowledge, skills, and health that enable them to contribute as productive members of society (World Bank 2022). It is accumulated throughout people's lives, and its effects go beyond current generations as better education and health in parents will traduce in greater cognitive and non-cognitive skills and health in their descendants (Lundborg, Nordin, and Rooth 2018). Nonetheless, when members of society develop an NCD such as cardiovascular disease, cancer, chronic obstructive pulmonary diseases, or diabetes, their HC is compromised due to direct and indirect impacts shown in Figure 1.1.

Figure 1.1 Direct and indirect impact of noncommunicable diseases on human capital

Source: Adapted from Nikoloski et al. 2021.



NCDs compromise human capital by causing early retirement, productivity loss, and unfulfilled educational attainment. Yassin et al. (2002) showed that the percentage of people with diabetes who stopped working due to their condition was higher than those without diabetes (7.2 percent vs. 2.2 percent in men; 12.8 percent vs. 3.3 percent in women). Similarly, people with chronic conditions tend to absent themselves more from work (absenteeism) or be present but with lower productivity than their peers without NCDs (presenteeism). The prevalence of NCDs results in a high number of premature deaths that creates further barriers to improving human capital, particularly among LMICs. On one hand, the impact of NCDs on educational attainment is mainly present in children and adolescents diagnosed with chronic conditions. In these groups, the presence of an NCD limits their school attendance and performance, creating future shortcomings when they join the labor workforce. On the other hand, the indirect impact of NCDs on human capital is reflected in the lower investment in education due to diverting resources to NCDs and engaging in unpaid work taking care of the chronically ill.

Proactively Addressing NCDs Could Help Kosovo Increase Human Capital and Accelerate Economic Growth

Life expectancy at birth in Kosovo remains the lowest compared with its Western Balkans peers; the difference is more significant among members of the Roma, Ashkali, and Egyptian communities. Although life expectancy at birth increased from 70.44 in 2011 to 72.5 in 2019, Kosovars still live less than the rest of Western Balkans countries (Figure 1.2). The difference is greater among Roma, Ashkali, and Egyptian communities, whose average was 58.7 years, with women living 2.5 years longer than men (59.9 vs. 57.4). Compared with the national average in 2014 (Figure 1.3), the life expectancy among Roma, Ashkali, and Egyptian communities is 12.54 years lower for both sexes; the gap is higher for females (13.7) than for males (11.6).

Figure 1.2 Life expectancy at birth in Western Balkans countries

Source: World Development Indicators 2023.

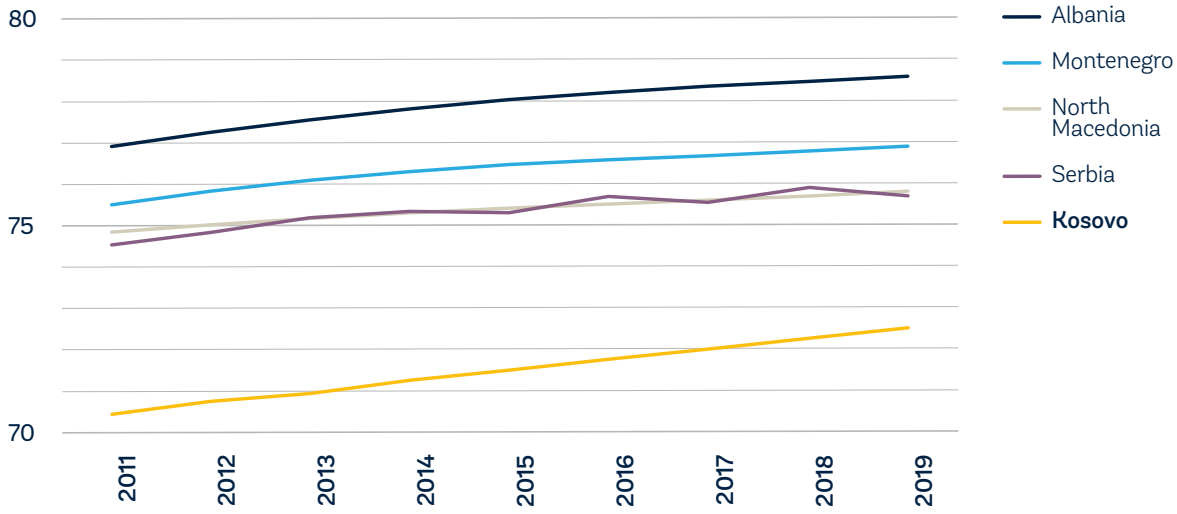
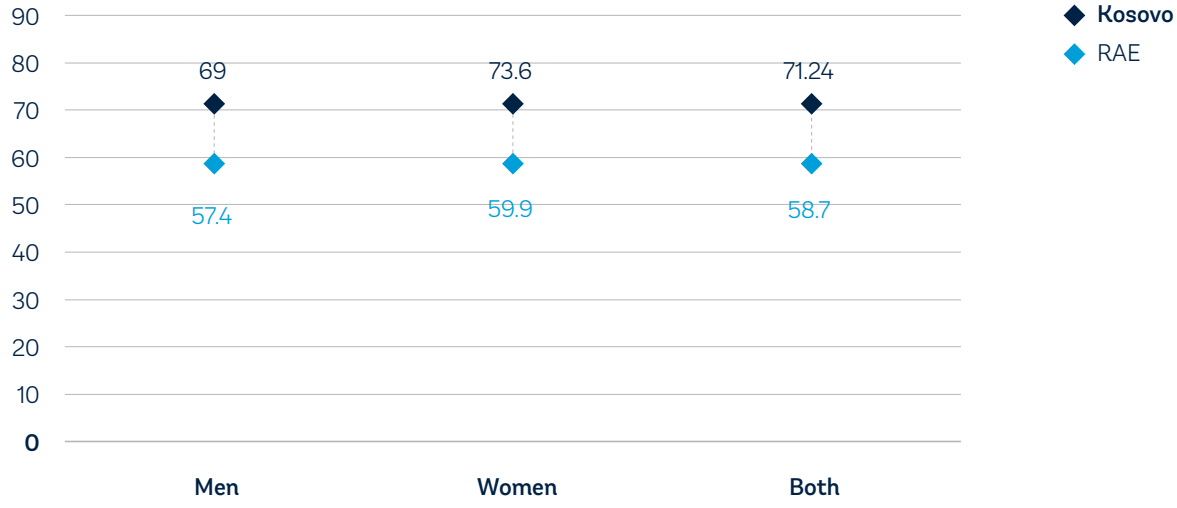


Figure 1.3 Life expectancy in Kosovo and Roma, Ashkali, and Egyptian communities in 2014

Source: KOSANA 2020 and World Bank 2022.



Kosovo can leverage its population structure to proactively address NCDs and lessen the financial burden on the health system. Kosovo has a population of 1.8 million, the vast majority being young (under 50 years) (Figure 1.4). Nonetheless, it is estimated that the population 50 years or older will constitute over 30 percent by 2031, and over 50 percent by 2061 (Figure 1.5). Although the current burden of NCDs might not be as significant as in countries with older populations, the high share of young people in Kosovo presents a timely opportunity to benefit from strengthened actions toward NCDs prevention that will lead to further economic growth and reduced financial burden on the health system. By addressing NCDs now, the young population would benefit from healthier lives, increasing current and future generations' human capital and prosperity.

Figure 1.4 Kosovo's population age structure in 2021

Source: KAS

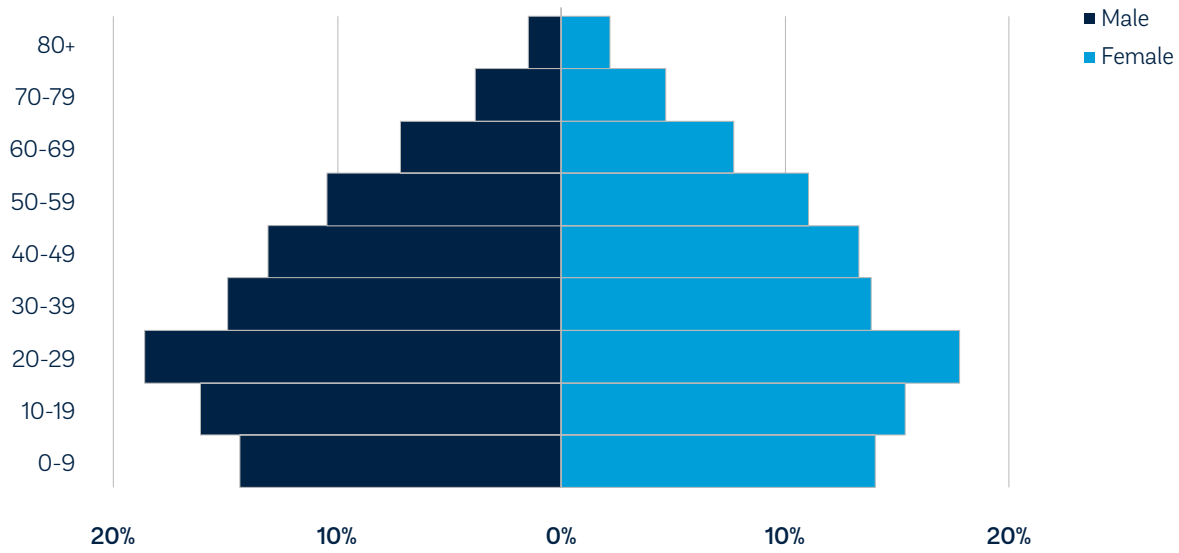
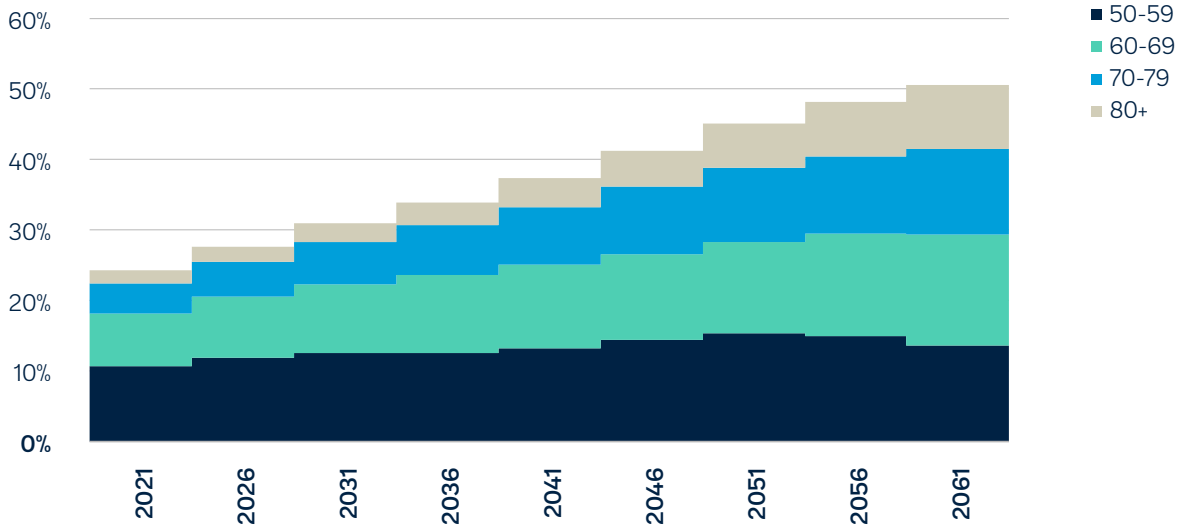


Figure 1.5 Projection of Kosovo's population 50 years or older

Source: KAS



RISK FACTORS OF NONCOMMUNICABLE DISEASES

Risk Factors of Noncommunicable Diseases

Background

Risk factors for NCDs are categorized as behavioral, metabolic, and environmental factors (Figure 2.1). Behavioral factors are those associated with the individual's lifestyle, the metabolic relate to conditions like hypertension and high fasting plasma glucose, and environmental risks include air pollution. The contribution of each category will depend on social determinants of health that vary per country and region due to political, cultural, economic, and social factors (Marmot and Bell 2019).

Figure 2.1 Major risk factors for NCDs

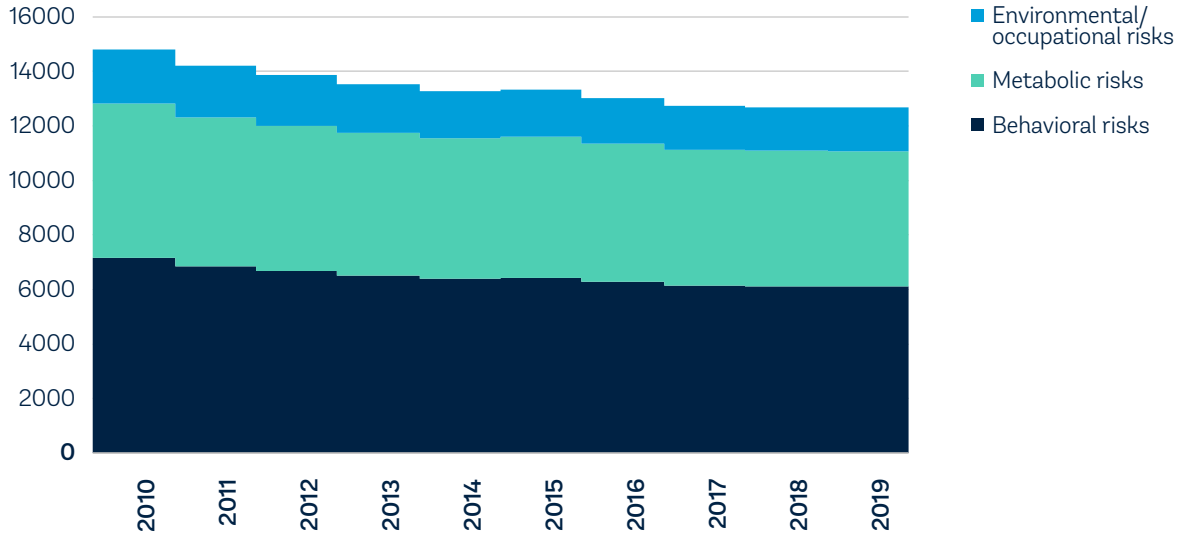
Source: GBD 2019.

Behavioral risk factors contribute to the highest burden of NCDs in Europe and Central Asia (ECA). According to the Institute of Health Metrics and Evaluation (IHME 2020), behavioral risk factors in ECA contributed to 6,105.5 DALYs per 100,000 population in 2019 and were followed by metabolic risk factors with 4,977.2 DALYs per 100,000 population (Figure 2.2). Tobacco (45.5 percent) and dietary risks (35.7 percent) are the main contributors to behavioral risk, and high blood pressure and high body-mass index represented 53.7 percent and 44.4 percent of DALYs per 100,000, respectively, for metabolic risks (IHME 2020).

This chapter explores the state of behavioral, metabolic, and environmental risk factors in NCDs in Kosovo, focusing on the leading group contributing to the burden of chronic conditions. Behavioral risk factors are the most important contributors to the development of chronic conditions and will be the main focus of this chapter. However, information from recent national surveys will show the effect of measurements of high blood pressure, impaired fasting glucose, and cholesterol. Additionally, occupational risk factors will emphasize the impact of air pollution among Kosovars.

Figure 2.2 Age-standardized DALYs per 100,00 population due to risk factors for NCDs in ECA 2020

Source: IHME



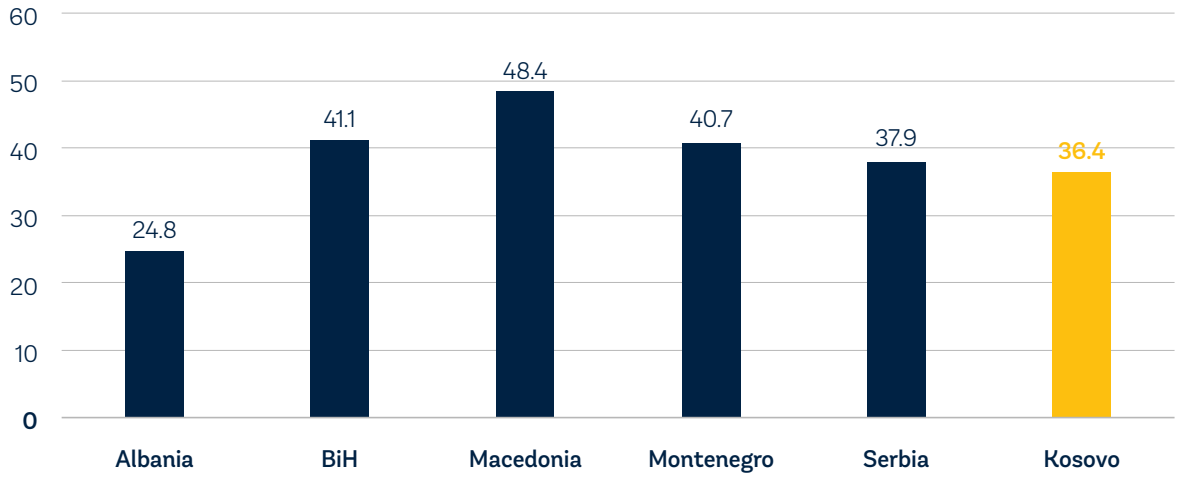
BEHAVIORAL RISK FACTORS

Smoking

The overall smoking prevalence among adults is lower in Kosovo than in most Western Balkans. Over a third (36.4 percent) of adults aged 18–85 in Kosovo reported being current smokers based on the Regional Survey on Tobacco Consumption in Southeastern European countries (STC-SEE) (Tobaccotaxation 2019). The finding was the second-lowest among Western Balkans countries, just above Albania (24.8 percent). The countries with the highest smoking prevalence among adults were Bosnia and Herzegovina and Macedonia, with 41.1 percent and 48.4 percent, respectively (Figure 2.3).

Figure 2.3 Overall prevalence (%) of smoking among adults (aged 18–85) in Western Balkans in 2019

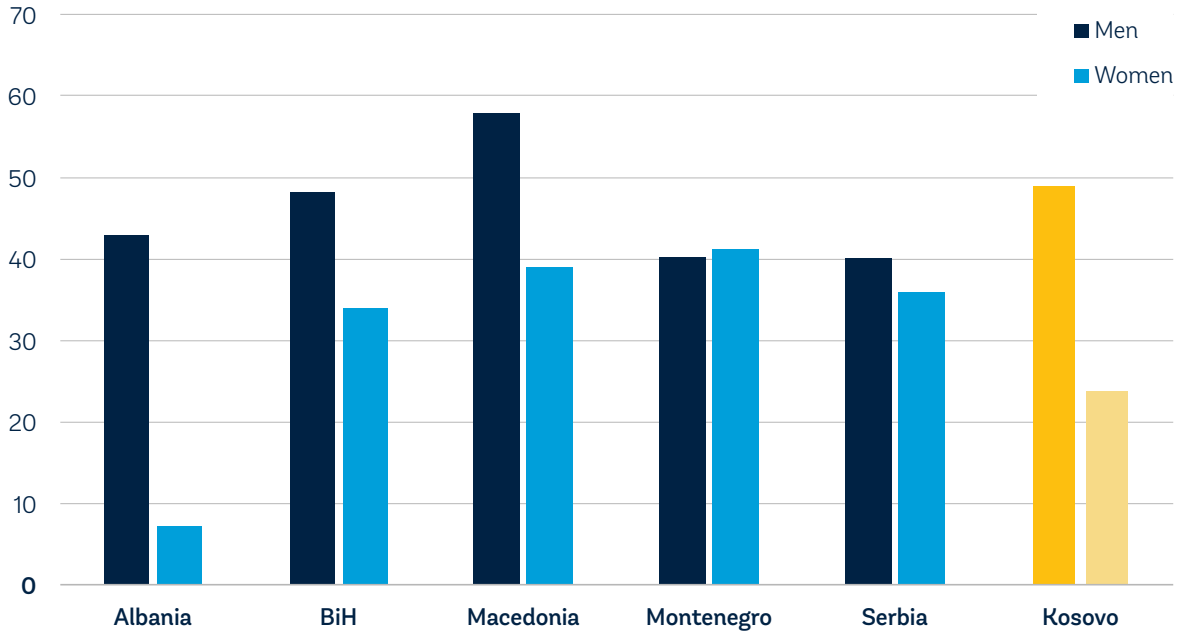
Source: Tobaccotaxation 2019



Despite the lower overall prevalence, male smokers in Kosovo are among the highest in the region. In 2019, the prevalence of smoking in Kosovo was more than double in men (48.9 percent) compared to women (23.8 percent) (Prekazi and Pula 2020). The figure among male adults represents the second-highest in Western Balkans, with only Macedonia reporting a higher share (57.9 percent). On the contrary, smoking among women in Kosovo is among the lowest, only surpassing 7.1 percent in Albania (Figure 2.4).

Figure 2.4 Smoking prevalence among adults in Western Balkans in 2019 divided by sex.

Source: Tobaccotaxation 2019

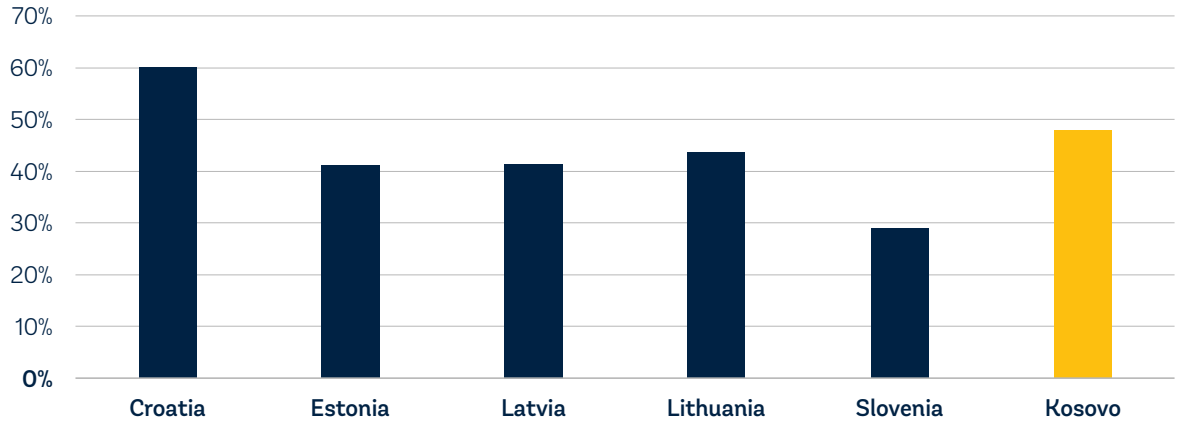


Heavy smoking – more than 20 cigarettes per day – is more prevalent among men than women. The prevalence of heavy smoking in Kosovo was 69.5 percent in 2019, with a greater share of male adults smoking over 20 cigarettes per day than females (80.1 percent vs. 47 percent) (Prekazi and Pula 2020). These findings resemble those from the STEPwise approach to surveillance (STEPS) survey carried out in 2011, where the mean number of cigarettes used by daily smokers was 20.9 in both sexes and higher in men (23.9) than women (14.7).

The prevalence of secondhand smoking at home is higher than most spirational peers. According to the Global Youth Tobacco Survey (GYTS) conducted in 2016, students aged 13–15 years reported higher secondhand smoking at home than EU aspirational peers (Figure 2.5). Only Croatia (60 percent) reported a higher share than Kosovo, while the lowest prevalence was observed in Slovenia, with around a third of students reporting secondhand smoking at home. Existing regulations prohibit smoking in public areas, work environments, means of public transport, and open areas – entries/exits of public areas, and playgrounds for children). However, secondhand smoke at home is prevalent in over half (50.4 percent) of adults in Kosovo (WHO n.d.).

Figure 2.5 Prevalence of secondhand smoking at home

Source: GYTS 2017 or latest

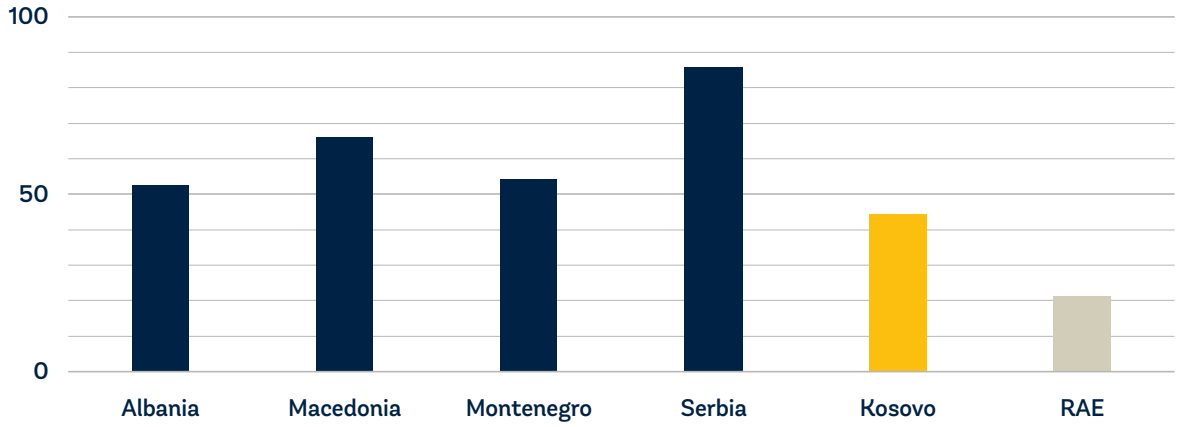


Unhealthy diet

Diet diversity is poor among children, especially from Roma, Ashkali, and Egyptian communities. Less than half (44.5 percent) of the children 6 to 23 months in Kosovo reported having a minimum dietary diversity (MDD), meaning they received five or more food groups during the previous day.[2] The UNICEF Multiple Indicator Cluster Survey 2019–2020 revealed that a lower share of children in Kosovo has a richly diverse diet than Western Balkans peers. Moreover, the difference is greater among children from Roma, Ashkali, and Egyptian communities, where only 21.3 percent reported receiving the minimum dietary diversity (Figure 2.6). Not surprisingly, the prevalence of stunting is almost four times higher in children from Roma, Ashkali, and Egyptian communities (15 percent) than in the Kosovo average (4 percent) (UNICEF and Kosovo Agency of Statistics 2020).

Figure 2.6 Prevalence of children (6 - 23 months) with a minimum dietary diversity in Western Balkans countries. RAE: Roma, Ashkali, and Egyptian

Source: UNICEF 2020 or latest available

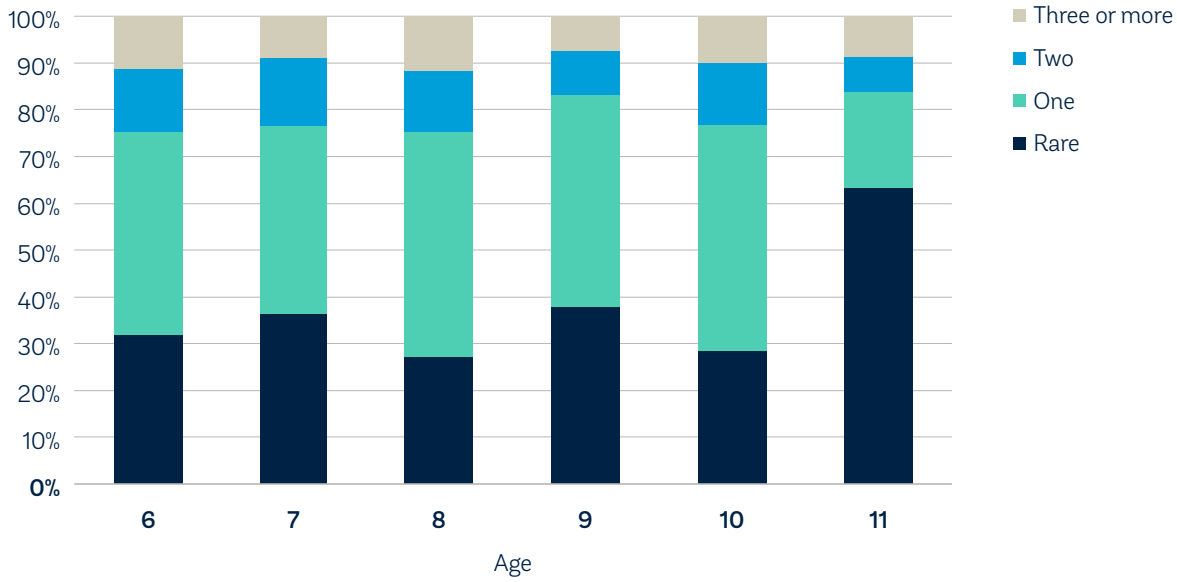


2 The indicator is based on consumption of any amount of food from at least five out of eight food groups: (1) breastmilk; (2) grains, roots and tubers; (3) legumes and nuts; (4) dairy products – milk, infant formula, yogurt, cheese; (5) flesh foods – meat, fish, poultry and liver/organ meats; (6) eggs; (7) vitamin-A rich fruits and vegetables; and (8) other fruits and vegetables.

Consumption of sugary food is high in children from urban areas in Kosovo. According to a survey conducted in 2017 by Ferizi et al., over two-thirds of children aged six to ten years living in urban areas consume sugar-sweetened beverages, sweets, and chocolate at least once a day (Ferizi et al. 2017). The prevalence of daily consumption of these products was highest among those aged 8 and 10. Only 27.1 percent of eight years-old and 28.4 percent of ten-year-olds reported rarely consuming sugary food. On the other hand, only around a third (36.5 percent) of eleven years-old children consume sweet sugar, sweetened beverages, sweets, or chocolate daily (Figure 2.7).

Figure 2.7 Daily frequency of consumption of sweetened food and confectionery among children 6 to 11 in 2017

Source: Ferizi et al. 2017



Physical activity

Physical activity is considerably low and has been reduced further since the COVID-19 pandemic. Obas et al. found that for a cohort of 997 participants physical inactivity[3] was the second most prevalent (70.3 percent) risk factor for NCDs in Kosovo, only behind poor nutrition, which was present in 85.1 percent of respondents (Obas et al. 2022). The level of education influenced the level of physical inactivity, being higher among those with only primary education (78 percent) compared to those with a university degree (67.8 percent). With the advent of COVID-19 and the mobility restrictions implemented to control the spread of the virus, Kosovars reduced their physical activity. A study by Sulejmani et al. revealed that the 41 percent of the people surveyed decreased their physical activity levels compared to the pre-pandemic status (Sulejmani et al. 2021).

3 Defined as <150 min of moderate-intensity physical activity per week; <75 min of vigorous-intensity physical activity per week, and less than an equivalent combination of moderate-intensity and vigorous-intensity activity.

Alcohol

Harmful drinking is common among adolescents in Kosovo. A study conducted among senior students (12th grade) in Pristina in 2015 showed that 43 percent of boys and 39 percent of girls reported harmful drinking[4] (Sajber et al. 2016). Likewise, a study among 13th grade students from 23 schools conducted during the 2014/2015 academic year reported similar results, where 41 percent of boys and 37 percent of girls had harmful drinking (Tahiraj et al. 2016). Data from other comparator countries show similar levels of harmful drinking among boys as seen in Bosnia and Herzegovina (47 percent) and Croatia (40 percent). Nonetheless, when comparing harmful drinking among girls, Kosovo (39 percent) scored higher than Bosnia and Herzegovina (18 percent) and Croatia (17.8 percent) (Sajber et al. 2016).

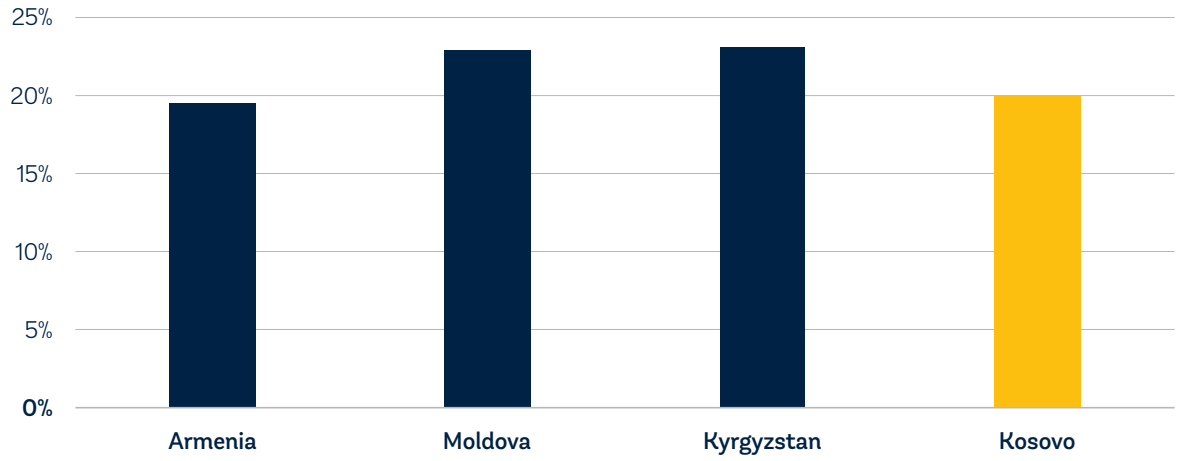
METABOLIC RISK FACTORS

Obesity

The prevalence of obesity is similar to structural peers. According to the STEPS survey, the prevalence of obesity (body mass index equal to or above 30 kg/m2) in 2019 was 20 percent, with women reporting a higher share (25.2 percent) than men (15.2 percent). The overall prevalence increased by almost one percent in 2019 compared to its 2011 result (19.2 percent). However, it is similar to the share of most structural peers (Figure 2.8).

Figure 2.8 Prevalence of obesity in Kosovo and structural peers

Source: STEPS Armenia (2015), Moldova (2013), Kyrgyzstan (2013) and Kosovo (2019)



Overweight in children under 5 is higher among urban and wealthy households in Kosovo. The overall prevalence of overweight in children under five years in Kosovo is 6 percent, but only half among children from Roma, Ashkali, and Egyptian communities. The share of children from urban communities reporting overweight is higher than those from rural areas (7 percent vs. 5 percent). A similar pattern is observed when comparing rich and poor households (8 percent

4 Defined as a score of 11 or above on the Alcohol Use Disorders Identification Tool (AUDIT).

vs. 5 percent). The mother's education also had an impact on the prevalence of overweight as the children of mothers with any education have half the prevalence of overweight (4 percent) compared to mothers with no education (8 percent) (UNICEF and Kosovo Agency of Statistics 2020).

The prevalence of obesity is low among children aged 2–7, but around a third are at risk of being overweight. According to a study conducted among children attending kindergarten in Kosovo, the prevalence of obesity was only 2.3 percent; boys reported a higher rate of obesity (2.7 percent) than girls (1.4 percent) (Rysha et al 2017). Overweight among the same age group was 8.9 percent (boys 10.9 percent, girls 5.9 percent). In addition to these figures, almost a third (27.3 percent) of children aged 2 to 7 were at risk of being overweight.

Male adolescents have a higher prevalence of obesity and overweight than their female counterparts. A study involving 354 adolescents (aged 14–15) from two urban and two rural schools in Kosovo showed that the prevalence of obesity and overweight was 28.2 percent among boys and 18.9 percent among girls (Tishukaj et al. 2017). Although the prevalence of obesity and overweight is not disaggregated by place of residence, the body mass index of adolescents from rural and urban areas did not show a statistically significant difference, suggesting that the share of obesity and overweight is similar in both areas (Tishukaj et al. 2017).

High blood pressure

Blood pressure measurement is uncommon among adults under 50 years. Although the self-reported prevalence of hypertension among adults 18+ is low in Kosovo (see Chapter 3), the number of adults with high blood pressure is likely to be higher. It is estimated that around half of people with hypertension are unaware of their condition due to the lack of symptoms (WHO 2021). Yet, blood pressure measurement by a health professional is rare among young adults, with over a third (34.4 percent) reporting that their blood pressure has never been measured and 27.6 percent stating that their blood pressure was measured more than six months ago. Only 14 percent of the population had a blood pressure measurement within the last six months from the interview (Figure 2.9). On the other hand, most of the population (60 percent) aged 50 or older reported having a blood pressure examination within the last six months (Figure 2.10).

Figure 2.9 Share of adults 18 – 49 reporting last time a health professional measured their blood pressure

Source: HBS 2017

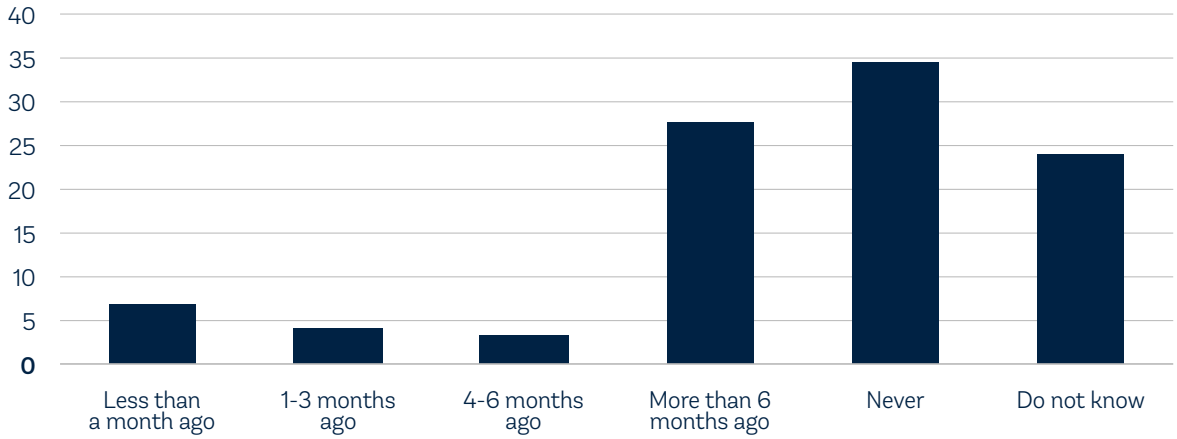
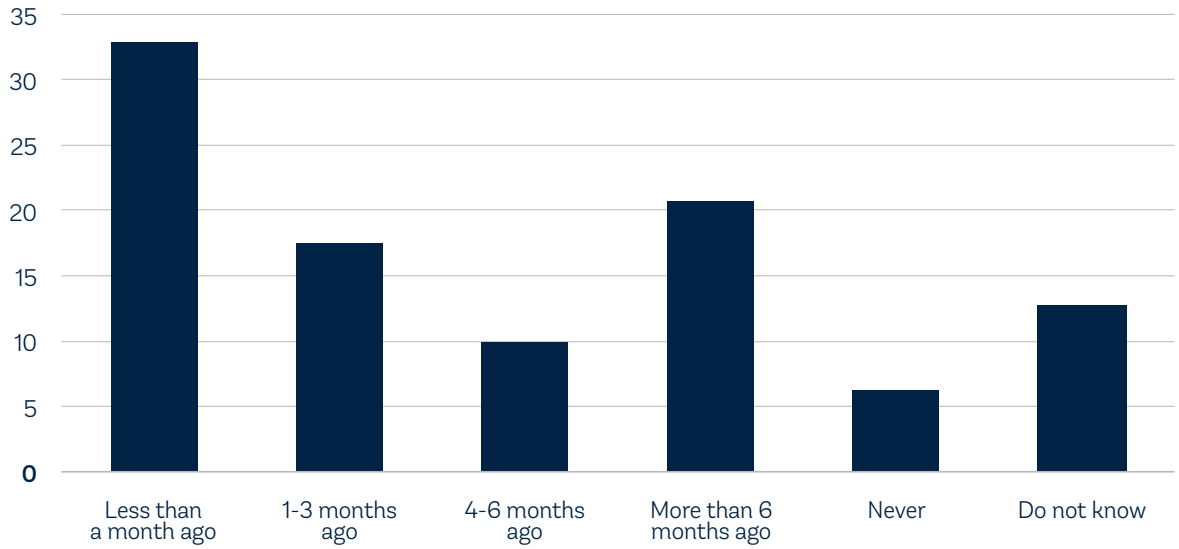


Figure 2.10 Share of adults 50+ reporting last time a health professional measured their blood pressure

Source: HBS 2017

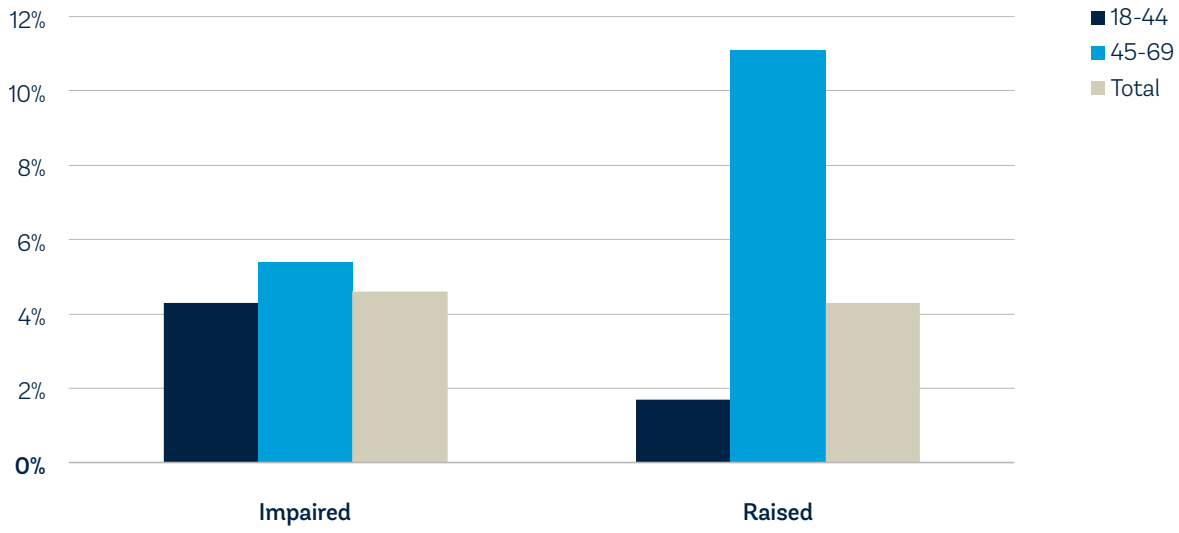


High fasting blood sugar

Raised fasting plasma glucose is considerably higher among adults 45–69, representing an increased risk of developing diabetes. The prevalence of impaired fasting plasma glucose (plasma glucose level of ≥6.1 mmol/L and <7.0 mmol/L) is around 5 percent among adults aged 18-69. However, there are significant differences across age groups. For instance, the prevalence of high fasting plasma glucose (plasma glucose at level ≥7.0 mmol/L or currently taking medication for diabetes) is almost five times higher among adults aged 18 to 44 (1.7 percent) and 45 to 69 (11.1 percent), as shown in Figure 2.11. The age-group differences highlight the increased risk with age and the lack of screening programs among younger adults.

Figure 2.11 Impaired and raised fasting plasma glucose among adults 18-69

Source: STEPS 2019



ENVIRONMENTAL RISK FACTORS

Air pollution

Kosovo is the main contributor of PM2.5 particles in the Western Balkans. PM2.5 is the most damaging pollutant for health due to its capacity to reach human organs, including the brain (UNICEF Kosovo 2019). The two coal plants in Kosovo (Kosovo A and Kosovo B) contribute 7,538 tons of PM2.5 particles per year, thus, exposing the whole population and neighboring countries to this harmful pollutant (HEAL 2016). In addition to the coal industry, transport and households, through the emission of dust and harmful gases, mostly from local coal-fired boiler houses and domestic heating furnaces, are the primary pollutants in Kosovo (Netherlands Court of Audit and Supreme Audit Office of Poland 2019).

Air pollution is directly linked to premature deaths and morbidity, creating high health care costs. It is estimated that 370 premature deaths are annually due to air pollution in Kosovo. In addition to these deaths, the health impact of pollutants from the coal industry, transport, and households include increased risk of bronchitis and asthma, hospital admissions, respiratory medication use, lower respiratory symptoms, restricted activity days, and lost working days. These consequences of air pollution on health translate into a total health cost of up to 352 EUR million per year (Netherlands Court of Audit and Supreme Audit Office of Poland 2019).

Behavioral and metabolic risk factors are widely spread among Kosovars, while the health impact of air pollution extends throughout the region. The analysis of behavioral risk factors showed the higher risk among certain population groups. For example, tobacco consumption is exceptionally high among men; unhealthy diets are a significant problem among minority groups; physical activity is less common in those with a lower education level; and harmful drinking is more significant among adolescents. Metabolic risk factors are mainly prevalent among the 45+ age group. The health impact of these risk factors is worsened by the two coal plants in Kosovo, increasing the risk for chronic respiratory diseases, contributing to hundreds of deaths and over 350 EUR million annually in health costs to the country. More importantly, the particles released from these plants affect households throughout the region. The cumulative risk from behavioral, metabolic, and environmental risk factors contributes to an increased burden of NCDs that leads to higher mortality and morbidity, reducing human capital growth.

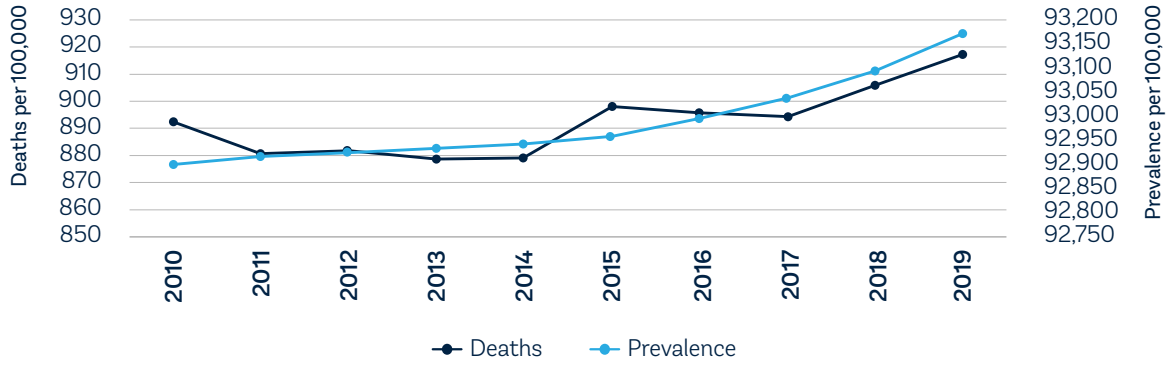
The Burden of Noncommunicable Diseases

Background

Noncommunicable diseases have risen in the ECA region. As shown in Figure 3.1, mortality increased from 892 deaths per 100,000 in 2010 to 917 deaths per 100,000 in 2019. Countries in the ECA region have witnessed a higher prevalence of these conditions, rising from 92,900 per 100,000 in 2010 to 93,171 per 100,000 in 2019 (IHME 2020).

Figure 3.1 Trend of deaths and prevalence of NCDs in the ECA region

Source: IHME 2020



The global cost of NCDs is soaring, threatening human capital and economic prosperity. By 2030, the cumulative global cost of NCDs is expected to surpass 45 USD trillion (NCD Alliance). The economic impact of NCDs results from direct and indirect costs; the former is related to healthcare costs, and the latter to lost productivity due to disability or premature death (Bloom et al. 2012). In 2018, for example, among the European Union Member States, the healthcare costs of CVDs accounted for 110,807 million EUR, ischemic heart disease for 18,876 million EUR, cerebrovascular diseases for 20,060 million EUR, and cancer for 96,596 million EUR (European Commission 2021b). Indirect costs significantly contribute to the financial burden of NCDs; in 2015, CVDs alone accounted for around one percent of the EU GDP (168,339 million EUR) (Vandenberghe and Albrecht 2020).

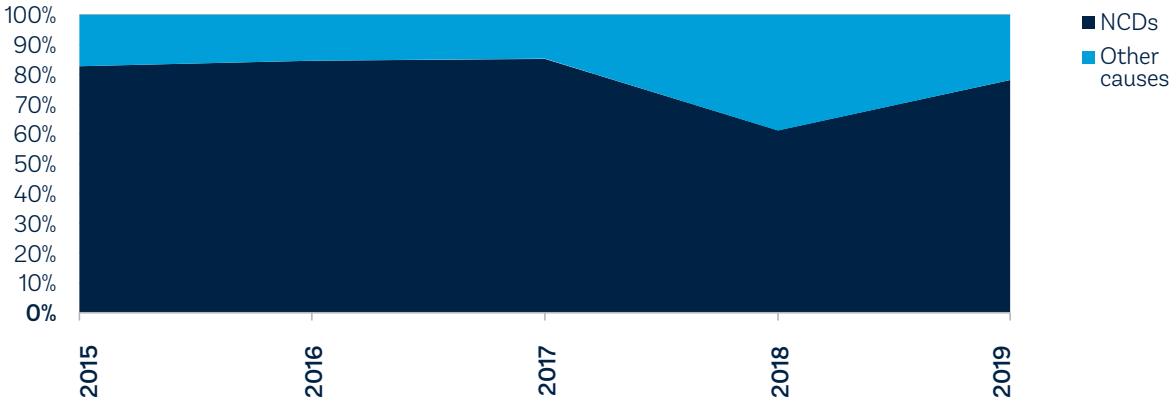
This chapter provides an overview of the health and economic burden of NCDs in Kosovo. The health burden is presented as mortality and morbidity due to NCDs conditions (NCCID 2016). The economic cost is estimated following a cost-of-illness (COI) approach for six NCDs (hypertension, diabetes mellitus, breast cancer, cervical cancer, lung cancer, and colorectal cancer) in Kosovo over the years 2023–2030.

THE HEALTH BURDEN OF NCDs

Noncommunicable diseases are the leading cause of death in Kosovo. Since 2015, NCDs, including circulatory system diseases and tumors, have represented around 80 percent of all coded causes of death in the country (Figure 3.2). In 2019, mortality rates due to CVDs were higher in males (233 per 100,000 population) than in females (210.8 per 100,000 population). Similarly, death rates due to neoplasms were 105.8 per 100,000 population in males and 63.7 per 100,000 population in females. The decrease observed in 2018 is attributed to almost a third (28 percent) of coded deaths being assigned to abnormal clinical or laboratory results not elsewhere identified, but more likely due to NCDs.

Figure 3.2 Main causes of deaths

Source: KAS

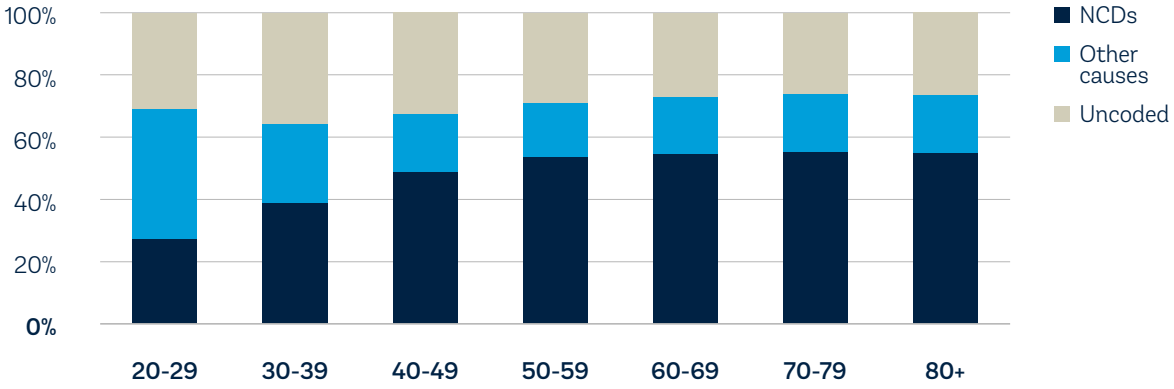


Note: Only shows coded deaths. Uncoded deaths accounted for around 20% of all deaths yearly.

In 2019, more than a third of deaths among young adults were attributed to NCDs, while the share more than doubled in the population aged 40 and above. Considering population age groups, the share of deaths due to NCDs in 2019 increased with age (Figure 3.3). Nevertheless, younger age-groups are already hit hard by NCDs, as chronic conditions are responsible for 40 percent of deaths even in the 20–29 age-group. On the other hand, over 70 percent of deaths in those aged 40 or older are attributed to NCDs.

Figure 3.3 Causes of deaths as share of total deaths according to age-groups in 2019

Source: KAS

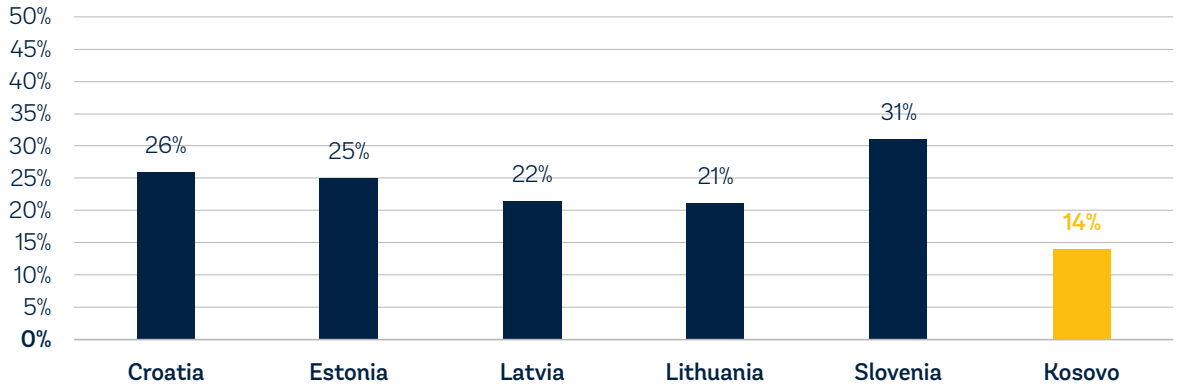


The burden of cancer

Mortality due to malignant neoplasms is lower than the share in aspirational peers. In 2019, less than a fifth (14 percent) of deaths in Kosovo were due to malignant neoplasms as a share of all deaths. On the other hand, aspirational comparators reported higher rates, with Estonia (25 percent), Croatia (26 percent), and Slovenia (31 percent) reporting around the percentage in Kosovo, while Latvia (22 percent) and Lithuania (21 percent) reported the closest proportions to Kosovo in the same year (Figure 3.4). The low percentage of deaths due to malignant neoplasms in the country could be explained due to data quality such as the high proportion of uncoded deaths mentioned above.

Figure 3.4 Deaths due to malignant neoplasms a share of total deaths in 2019

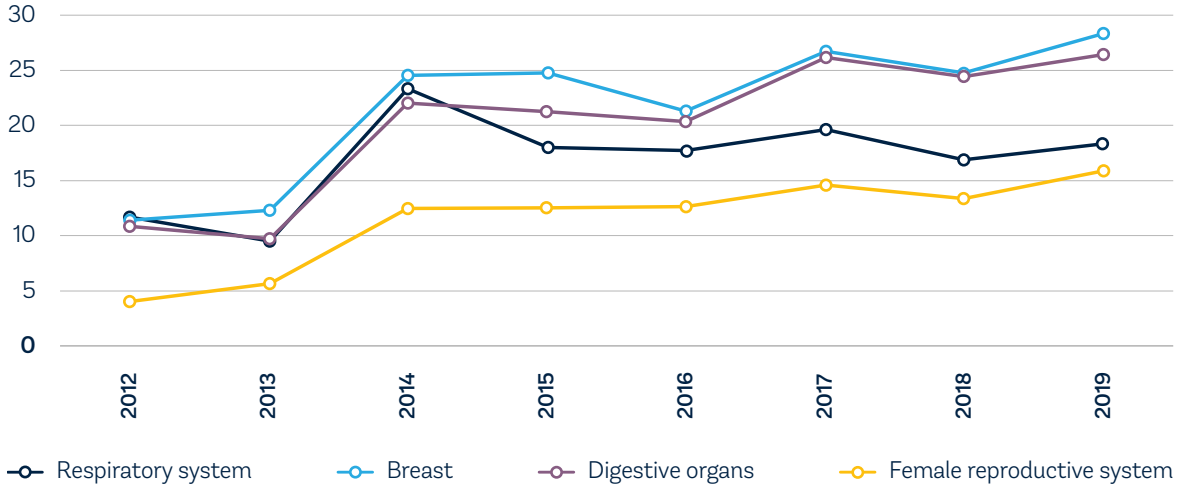
Source: Eurostat 2019, KAS



Cases of breast cancer and cancer of the digestive organs have increased in the last five years. Breast cancer increased from 11.4 cases per 100,000 population in 2012 to 28.3 cases per 100,000 population in 2019, representing the main type of cancer diagnosed in Kosovo. Cancer of the digestive organs also increased significantly from 10.9 cases per 100,000 population in 2012 to 26.4 cases per 100,000 population in 2019. Although cancer of the female reproductive system is the least common type, it increased almost fourfold from 2012 to 2019 (Figure 3.5), suggesting that improved screening programs (see Chapter 4) could play a role in the observed pattern.

Figure 3.5 Trend of the five main types of cancer per 100,000 population

Source: KAS



Cancer of the digestive organs is more common in men, and breast cancer is the primary type of cancer diagnosed in women. In 2019, there were 2,951 new cases of cancer diagnosed in Kosovo. The most frequent causes of cancer differed between men and women (Table 3.1). Males were more frequently diagnosed with cancer of digestive organs (22.51 percent), respiratory organs (21.73 percent), and skin cancer (15.73 percent); women were mainly affected by breast cancer (36.62 percent), followed by tumors of genital organs (20.69 percent) and digestive organs (13.3 percent).

Table 3.1 Main types of cancer diagnosed in Kosovo in 2019 as a share of all detected cases, by gender

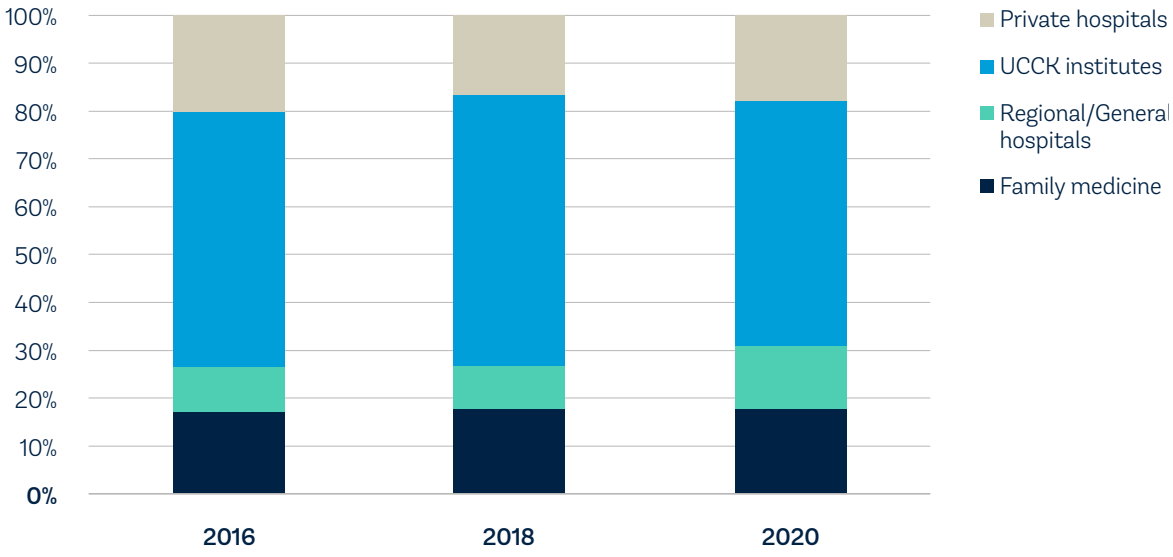
Males		Females	
Cancer of digestive organs	22.51%	Breast cancer	36.62%
Cancer of respiratory organs	21.73%	Cancer of genital organs	20.69%
Skin cancer	15.73%	Cancer of digestive organs	13.3%
Cancer of genital organs	13.4%	Skin cancer	9.58%
Cancer of the urinary tract	11.29%	Cancer of the urinary tract	3.58%

Source: KAS

Most of the new cancer cases are identified in public health care institutions. In 2018, the share of new cancer cases identified at the institutes of the University Clinical Center in Kosovo (UCCK) was the greatest (56.7 percent), followed by family medicine centers (17.8 percent). Less than 15 percent of cancer cases have been detected in regional or general hospitals. The private sector had a small contribution to identifying new cancer cases, as only 16 percent of cases were identified at institutions in this sector (Figure 3.6).

Figure 3.6 Healthcare institutions where cancers were diagnosed in 2019

Source: NIPH



Cancer incidence considerably varies within the country. Rates of new cancer cases per 100,000 at the municipality level showed a significant disparity, according to the 2019 Report on Malignant Diseases (Figure 3.7). The lowest rates were observed in Graçanicë and Zubin Potok, with 8.25 and 15.06 cases per 100,000 population. On the other hand, the municipalities with the highest rates were Prishtinë (194.24 per 100,000 population) and Vushtrri (184.11 per 100,000 population).

Figure 3.7 New cancer cases per 100,000 population at the municipality level

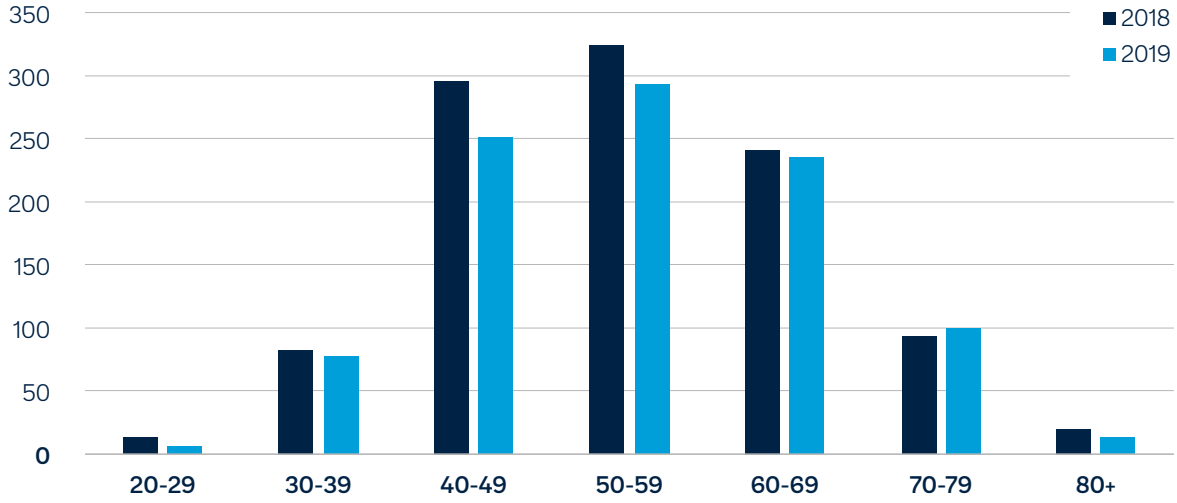
Source: Report of Malignant Diseases

The difference in the incidence across the country reflects the diagnosis capability and data accuracy in certain municipalities, resulting in disproportionate access to these services.

Most breast cancer cases were detected in women aged 40 or older. According to the Report of Malignant Diseases, in 2018 and 2019, over two-thirds of breast cancer were reported in women above 40 years. Women under 40 represented less than 10 percent of the breast cancer cases for these years, a similar percentage to the American Cancer Society (ACS) reports (Anders et al. 2009). However, cases in women aged 40–49 were higher than the 20 percent reported by the ACS (Price 2015), constituting 27.7 percent of cases in 2018 and 25.7 percent in 2019 (Figure 3.8).

Figure 3.8 Breast cancer cases by age-group

Source: Report of Malignant Diseases 2018 and 2019

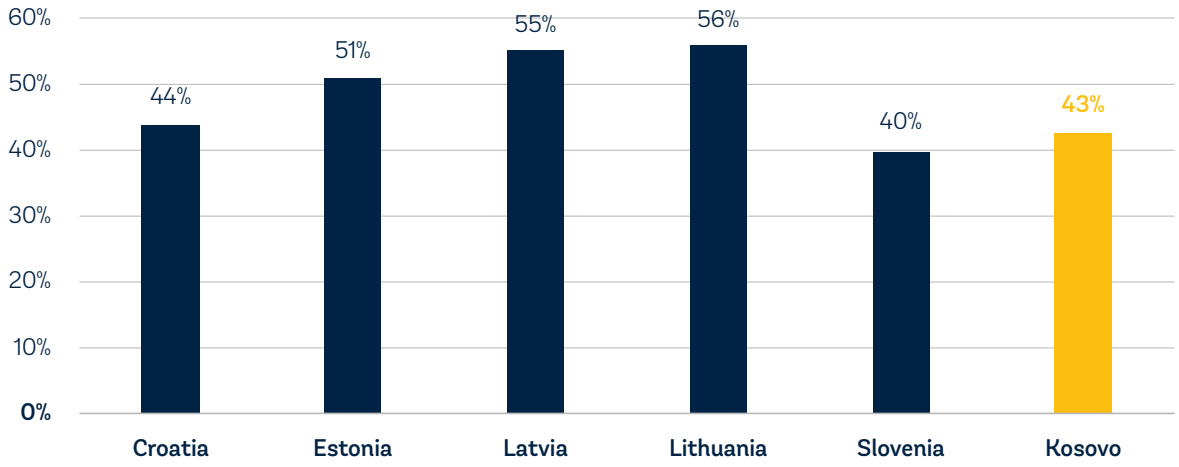


The burden of CVDs and diabetes

Mortality due to CVD is similar to aspirational peers. CVD is the leading cause of mortality in Kosovo, representing over 40 percent of all deaths in 2018 (Figure 3.9). The share of deaths due to CVD in the country was similar to most aspirational peers in the same year, only greater than Slovenia (40 percent) and lower than Estonia (51 percent), Latvia (55 percent), and Lithuania (56 percent) (Eurostat 2022).

Figure 3.9 Deaths due to cardiovascular disease as a share of all deaths in 2018

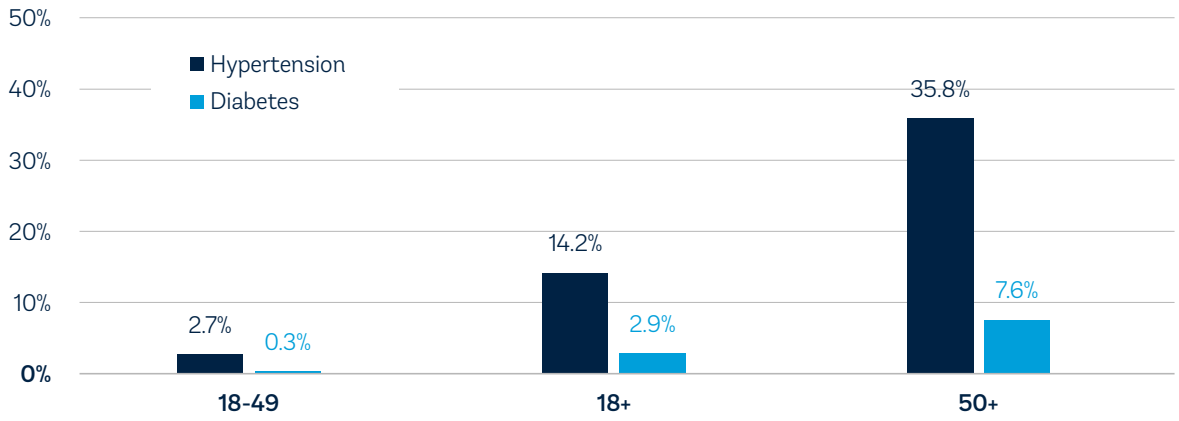
Source: Eurostat, KAS



Hypertension and diabetes are the most commonly self-reported NCDs among adults in Kosovo. According to the Household Budget Survey results from 2017, only 14.2 percent and 2.9 percent of adults aged 18 and above reported having hypertension or diabetes, respectively. However, the number was as low as 2.7 percent for hypertension and 0.3 percent for diabetes when looking at adults aged 18 to 49. For those 50 years or older, the share of people self-reporting having hypertension increased to 35.8 percent and the share of diabetes to 7.6 percent (Figure 3.10).

Figure 3.10 Self-reported hypertension and diabetes among adults in Kosovo

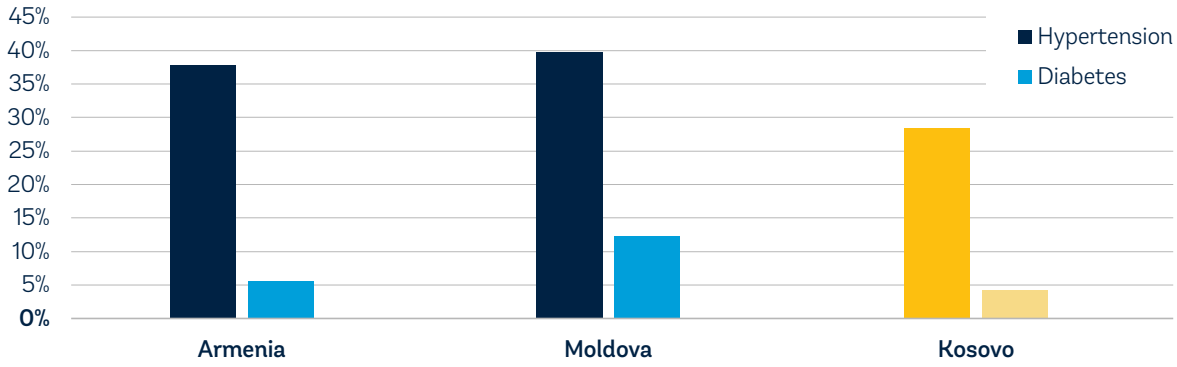
Source: HBS 2017



The prevalence of hypertension and diabetes is lower than structural peers, but it seems many cases remain undiagnosed, untreated, or uncontrolled. According to the STEPS conducted in 2019, the share of adults 18 to 69 with raised blood pressure (SBP ≥140 mmHg and/or DBP ≥90 mmHg) or currently taking medication for hypertension was 28.4 percent, and the share with raised fasting plasma glucose at level ≥7.0 mmol/L or currently taking medication for diabetes was 4.3 percent. These figures are lower than structural peers with available data (Figure 3.11). Although the prevalence of hypertension is considerably lower than in Armenia and Moldova, 55 percent of the cases in Kosovo were previously undiagnosed, 9 percent were diagnosed but untreated, and 25.4 percent were treated but uncontrolled. A similar picture was observed with diabetes, with only around half of patients with diabetes being treated. (STEPS 2019) The low percentages of patients being diagnosed and treated reflect the lack of comprehensive screening programs and suggest poor adherence to treatment and clinical guidelines.

Figure 3.11 Proportion of adults 18 – 69 with impaired blood pressure and blood glucose levels

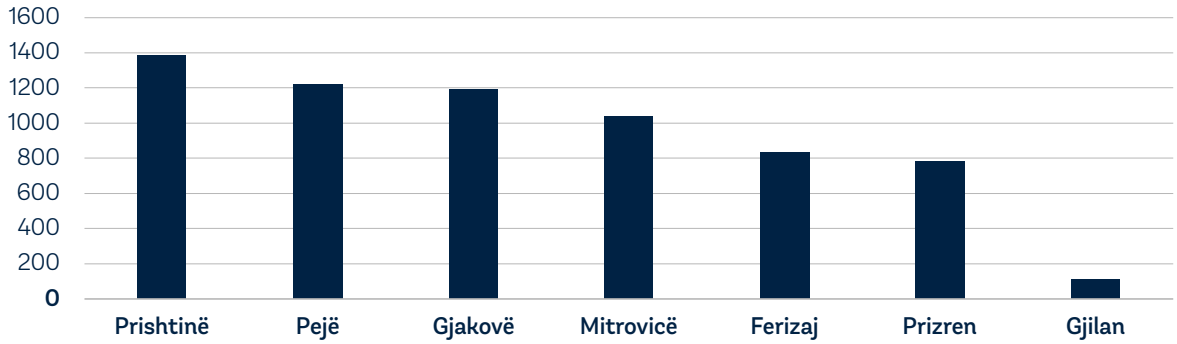
Source: STEPS 2013 (Moldova), 2016 (Armenia), 2019 (Kosovo)



The prevalence of insulin-dependent patients contrasts across the country. The reported number of insulin-dependent patients per 100,000 varies among municipalities. In 2020, the municipality with the highest number of patients under this treatment was Pristina with 1,383 per 100,000 population; the lowest was Gjilan with only 111 per 100,000 (Figure 3.12). The more than ten-fold difference between these two municipalities suggests differences in data quality and access to diagnosis and health care.

Figure 3.12 Prevalence of insulin dependent patients per 100,000 population in 2020

Source: Health directory of municipalities report



The burden of mental health disorders

Kosovars live with the mental health burden that is a consequence of conflicts in recent decades. A recent systematic review and meta-analysis by Hoppen et al. calculated that 915,361 adult Kosovars survived the war experienced in the late 1990s. Of this number, it is estimated that over two-thirds (62.7 percent) experience post-traumatic stress disorder and/or major depression (Table 3.2) (Hoppen et al. 2021). Women who lost their husbands during the war have a higher mental health burden compared to women who did not experience a loss of a family member during and after the war or women who lost a family member other than their husband (Figure 3.13) (Morina and Emmelkamp 2012).

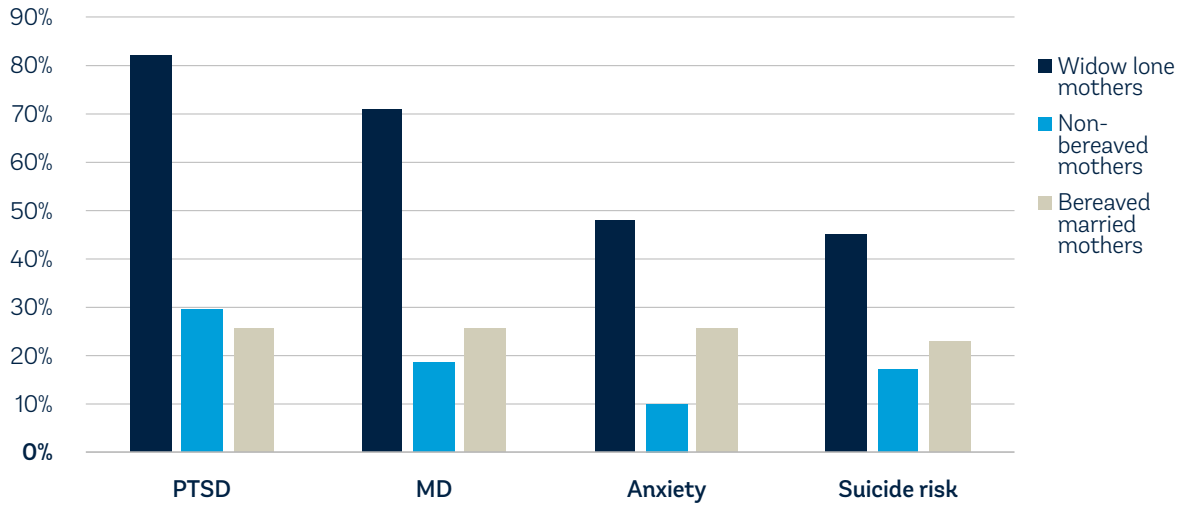
Table 3.2 Absolute prevalence of post-traumatic stress disorder and major depression among war survivors in Kosovo

Condition	Number of adults (95%CI)
War survivor	915,361
PTSD	242,662 (202,936 – 284,677)
MD	213,374 (169,799 – 260,146)
PTSD + MD	117,909 (84,850 – 145,199)

Note: PTSD: post-traumatic stress disorder, MD: major depression, 95%CI: confidence interval at 95%.
Source: Adapted from Hoppen et al. 2021.

Figure 3.13 Prevalence of mental health disorders among female war survivors

Source: Morina and Emmelkamp 2012



Note: PTSD: post-traumatic stress disorder, MD: major depression.

THE ECONOMIC BURDEN OF NCDs

The economic burden of NCDs was measured using a cost-of-illness (COI) analysis. COI analysis measures the medical and non-medical costs related to a specific disease or group of conditions. The costs can be divided into direct health care costs – inpatient and outpatient care, diagnostic services, drug costs; direct non-health care costs – social services, counseling, transportation; and indirect cost – productivity losses due to disability, absenteeism, presenteeism, and premature mortality (Jo 2014).

Data availability was a major limitation of the COI analysis. Data included GDP data, the expected number of years of working life lost, disease prevalence, and labor force participation rates. In addition, local experts were consulted when information was not available or unreliable. Due to data constraints, the analysis estimates the economic burden of only six conditions: hypertension, diabetes, breast cancer, cervical cancer, lung cancer, and colorectal cancer. The following sections present the results of two COI scenarios for which assumptions can be found in Box 3.1. Annex A presents a detailed description of the COI methodology and data sources for the described scenarios.

Box 3.1. Assumptions and key notes on the two COI scenarios

The COI analysis for both scenarios estimates the economic burden of six NCDs – hypertension, diabetes, breast cancer, cervical cancer, lung cancer, and colorectal cancer – over the period 2023–2030 with an assumed 5 percent yearly increase in the prevalence of the included NCDs.

Both scenarios assumed a healthcare service coverage of 100% for all cases of the six NCDs. Also, it was assumed that all NCD cases were treated according to standard treatment requirements (see Annex A) based on clinical guidelines. The labor participation rates were assumed to have remained constant during the studied period. The calculations were conducted from the society's perspective; hence, the results aggregate patient and provider costs. Due to the lack of reliable data, the cost of presenteeism is not included.

The main difference between the two scenarios relates to labor force participation. Scenario 1 includes in the analysis the current labor force participation based on KAS data. However, such analysis could be subject to endogeneity problem because labor force participation, rather low in the case of Kosovo, could be due to the disease burdens themselves. Scenario 2 follows a human capital approach by considering a labor force participation of 100%, assuming that all working aged people have the opportunity to be employed and are working. Together with the assumptions of 100% health service coverage and 100% adherence to standard treatment, Scenario 2 points to the highest potential cost to the society induced by the studied NCDs.

The economic burden of the six studied NCDs varies by type of costs. While hypertension and diabetes impose the highest burden of healthcare and productivity cost due to absenteeism, lung cancer and breast cancer outweigh other conditions by far in terms of productivity cost due to premature death (Table 3 for Scenario 1 and Table 4 for Scenario 2). In both scenarios, in 2023, the healthcare cost associated with hypertension alone is estimated to be 68.76 million EUR, or 65.6 percent of the sum of health care cost for all six conditions.

Considering the real current labor force participation rate (Scenario 1, Table 3), the cost due to absenteeism is highest for hypertension (82.69 EUR million), while the cost due to premature death is highest among lung cancer (50.89 EUR million). The ranking remains the same when one uses the 100 percent labor force participation assumption, but both absenteeism and premature death costs are estimated to be much higher in Scenario 2 (Table 3.4).

Table 3.3 Economic burden of NCDs in 2023 in EUR millions for Scenario 1, by cost type

	Health care costs	Productivity cost of premature deaths	Productivity cost of absenteeism	Total	%
Hypertension	68.76	6.90	82.69	158.36	46.8%
Diabetes	24.78	4.15	34.23	63.16	18.7%
Breast cancer	5.28	29.26	3.88	38.43	11.4%
Cervical cancer	1.79	8.35	2.04	12.18	3.6%
Lung cancer	2.23	50.89	1.21	54.33	16.1%
Colorectal cancer	1.96	9.00	1.06	12.01	3.5%
Total	104.8	108.56	125.10	338.47	100.0%

Table 3.4 Economic burden of non-communicable diseases in 2023 in EUR millions for Scenario 2, by cost type

	Health care costs	Productivity cost of premature deaths	Productivity cost of absenteeism	Total	%
Hypertension	68.76	18.03	215.91	302.70	42.3%
Diabetes	24.78	10.84	89.37	124.99	17.5%
Breast cancer	5.28	76.40	10.14	91.83	12.8%
Cervical cancer	1.79	21.81	5.31	28.92	4.0%
Lung cancer	2.23	132.86	3.15	138.24	19.3%
Colorectal cancer	1.96	23.49	2.76	28.21	3.9%
Total	104.8	283.44	326.64	714.89	100.0%

With the caveats about data limitations, the six studied NCDs were estimated to impose a major economic burden on Kosovo's slow-growing economy. From 2023 to 2030 the total cost of NCDs is estimated to be 3,232.09 million EUR according to Scenario 1 and 6,826.58 million EUR according to Scenario 2. Of these, the direct healthcare costs alone total 1,000.84 million EUR and the remainder constitutes productivity costs due to premature deaths and absenteeism (Table 3.5 and Table 3.6). For 2023 alone, the estimated health care costs assuming 100 percent service coverage and 100 percent adherence to standard care amounts to 104.81 million EUR. Considering Kosovo's approved health budget of 296 million EUR for 2023, this would mean that 35 percent of the total government spending on health needs to be allocated to provide optimal services needed for treatment of the six NCDs.

Table 3.5 Economic burden of non-communicable diseases in EUR millions for Scenario 1, by year and cost type

	Health care costs	Productivity cost of premature deaths	Productivity cost of absenteeism	Total
2023	104.81	108.56	125.10	338.47
2024	110.05	113.98	131.36	355.39
2025	115.55	119.68	137.93	373.16
2026	121.33	125.67	144.82	391.82
2027	127.40	131.95	152.07	411.41
2028	133.77	138.55	159.67	431.98
2029	140.45	145.48	167.65	453.58
2030	147.48	152.75	176.03	476.26
Total	1,000.84	1,036.62	1,194.64	3,232.09

Table 3.6 Economic burden of non-communicable diseases in EUR millions for Scenario 2, by year and cost type

	Health care costs	Productivity cost of premature deaths	Productivity cost of absenteeism	Total
2023	104.81	283.44	326.64	714.89
2024	110.05	297.61	342.98	750.64
2025	115.55	312.49	360.13	788.17
2026	121.33	328.12	378.13	827.58
2027	127.40	344.52	397.04	868.96
2028	133.77	361.75	416.89	912.40
2029	140.45	379.83	437.73	958.02
2030	147.48	398.83	459.62	1005.92
Total	1,000.84	2,706.58	3,119.16	6,826.58

Limitations

The economic cost analysis has limitations that should be considered in the interpretation of the findings. The analysis was constrained by a lack of granular data to perform a more accurate estimate of the country's NCD costs. Similarly, the COI analysis includes the main six NCDs, and others such as respiratory diseases and neurological disorders) were not included, suggesting that the NCDs costs might be underestimated. The findings are more illustrative and highlight the potential economic burden to the country if NCDs are properly treated (direct cost) and human capital can be used at its optimal potential, that is, 100 percent coverage of services with full standard of care and full labor participation.

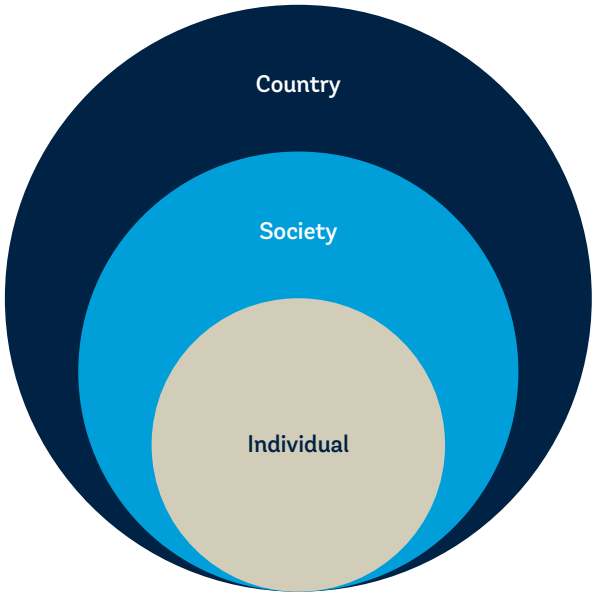
Risk Reduction and Early Detection of Noncommunicable Diseases

Background

Prevention of NCDs requires a multilevel and multisectoral approach. Actions to address behavioral, metabolic, and occupational risk factors for NCDs involve three levels of prevention as shown in Figure 4.1. Kosovo has implemented risk reduction and early detection campaigns to lessen the burden of NCDs, but these interventions have remained limited.

Figure 4.1 Levels of prevention for the management of NCDs

Source: Adapted from Budreviciute et al. 2020



Reducing the risk of NCDs

Health promotion at the primary care level is not systematically or proactively performed. Primary health care is the core level of health systems to promote health and reduce the risk of NCDs. However, there is no comprehensive strategy to systematically implement health promotion at the primary level of care (see chapter 5), leaving most risk reduction activities to initiatives from donors and non-governmental organizations.

Health-related "world days" are used to organize activities promoting healthy lifestyles and increasing awareness of chronic conditions. The international commemoration of days such as World Health Day and World Heart Day has brought together governmental and nongovernmental sectors in Kosovo to promote prevention and spread information on reducing the risk of NCDs. For example, in collaboration with the government, the Balkans Breast Cancer Initiative organized the Breast Cancer Awareness Walk to increase the knowledge of this condition among the general public (World Partnerships 2021). Likewise, during World Diabetes Day, representatives of Kosovo's Main Family Medical Centers and the Accessible Quality Healthcare project organized community activities at the country's main squares to guide and encourage people to maintain habits for a healthy life (Accessible Quality Healthcare 2021).

Educational campaigns for prevention of NCDs involve multiple sectors of the government and society. During the last decade, different sectors of society have been involved in the organization of NCD prevention campaigns, particularly in Peja. For example, from 2012 to 2018, the Regional Institute of Public Health of Peja (RIPH Peja) and the Regional Police of Peja delivered the health education campaign, "Say No to Narcotics," among primary and high school pupils of the Peja Region. Similarly, in 2014, the pupils from this region benefited from an education campaign to reduce violence at school. Moreover, the RIPH Peja collaborated with the Peja Regional Hospital and the Main Family Medicine Center of Peja on a health education campaign to prevent diabetes.

Vaccination for the human papillomavirus (HPV) is considerably low. The HPV vaccine reduces cervical cancer rates by almost 90 percent (Falcaro et al. 2021). A survey conducted at the Clinic of Obstetrics and Gynecology at the Hospital and University Clinical Service of Kosovo revealed that 70.1 percent of women had never heard of the HPV vaccine and less than one percent were vaccinated against HPV (Raçi, Raçi, and Hadri 2021). Moreover, less than a third (27.6 percent) were aware that HPV causes cervical cancer. Current initiatives by the Ministry of Health and the National Institute of Public Health (NIPH) to introduce the HPV vaccine for the first time in Kosovo show positive response from the public.

Breast cancer awareness remains low, particularly among vulnerable groups. Gaps in knowledge about breast cancer screening methods are evident. Women in urban areas, those with higher levels of education, and those who are employed have higher levels of awareness about breast cancer screening than women who are in rural areas, less educated, and unemployed (Turjaka et al. 2010). Additionally, due to low socioeconomic levels, limited sexual education, and cultural constraints, women with breast and other cancers are diagnosed late in rural areas (Arifi et al. 2013).

Early detection of NCDs

The infrastructure for early detection of breast cancer is limited. Breast cancer represents the leading cause of death by type of cancer in Kosovo (see Chapter 3), but the country has only a limited number of mammography equipment to provide screening services for women. In 2014, there were only 11 centers capable of performing mammographies, or 0.61 mammographies per 100,000 population, which is almost half of the rate in North Macedonia (1.11 per 100,000 population) and about a third of the rate in Serbia (1.63 per 100,000 population) for the same year or latest available (WHO n.d.).

Mammographies are performed in a limited number of hospitals. Adding to the scarcity of equipment to perform breast cancer screening with mammographies, there is limited distribution of the facilities offering this service. In 2016, there were four hospitals (Vushtrri, Mitrovicë, Prizren, and the UCCK) providing mammography services, but the number was reduced to only one facility (UCCK) in 2020, with mobile mammographies substituting for the rest of the hospitals (Table 4.1).

Table 4.1 Mammography services delivered by hospitals from 2016 to 2020

	2016	2017	2018	2019	2020
Vushtrri hospital	233	0	0	0	0
Gjakovë hospital	0	0	0	0	0
Mitrovicë hospital	64	0	0	0	0
Ferizaj hospital	0	0	0	0	0
Gjilan hospital	0	0	0	0	0
Prizren hospital	63	0	0	0	0
Pejë hospital	0	0	0	0	0
UCCK	19,852	12,716	16,548	3,396	1,600
MOMC	0	0	0	0	0
Mobile*	0	0	1,653	1,612	3,294

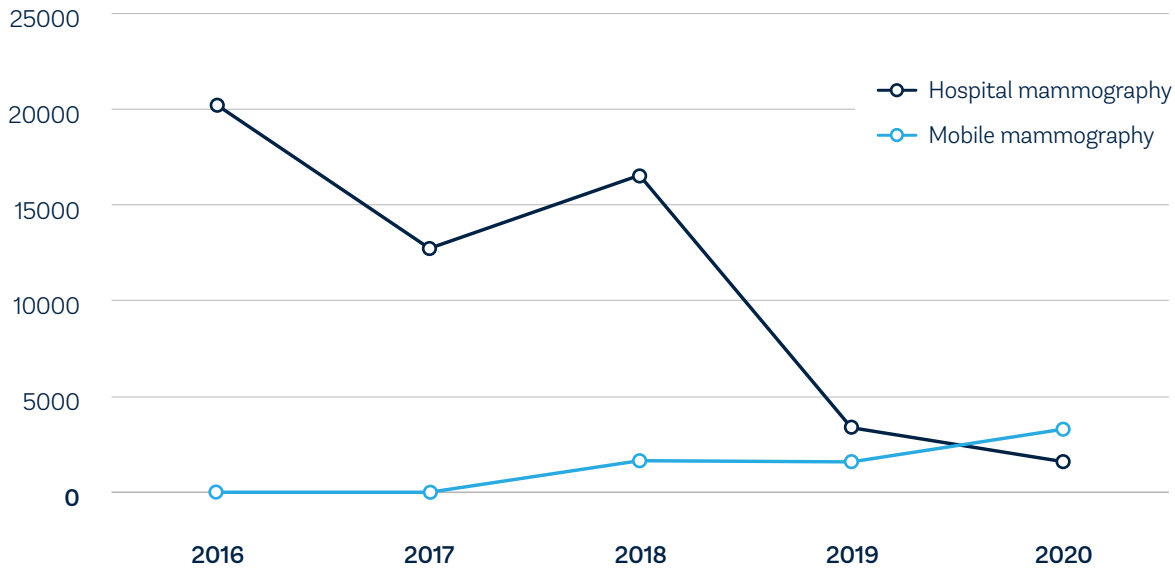
Note: *Mobile services were provided by Vushtrri and Mitrovicë hospitals in 2018 and 2019; Prizren and Pejë hospitals provided mobile mammographies in 2020. The UCCK offered mobile mammographies in 2018 and 2020.

Source: Authors' compilation based on NIPH data.

Breast cancer screening is low and has further decreased since the COVID-19 pandemic. According to the European Commission Initiative on Breast Cancer, all women aged 45 or above should undertake screening through a mammography evaluation (European Commission 2022). In 2016, 258,714 women met these criteria. However, the number of mammographies performed at health care institutions and mobile mammography was below 25,000, accounting for less than 10 percent of eligible women. Moreover, the number of performed mammographies has decreased over time, reaching numbers below five thousand since the advent of COVID-19 (Figure 4.2).

Figure 4.2 Trend of mammographies performed in Kosovo from 2016 to 2020

Source: NIPH



The Mobile Mammography Initiative has increased access to breast cancer screening in rural and remote areas but the majority of women still remain unscreened. The limited availability of hospitals offering breast cancer screening motivated diverse sectors of the society to join efforts to create the Breast Cancer Screening Program and Mobile Mammography in Kosovo. The program has enabled women from rural and minority groups to access free screening services for breast cancer (Box 4.1). The program has performed over 11,000 mammographies and, in 2017, surpassed the number of performed mammographies compared to mammography located in health care facilities, making it the largest mammography center in the country. Despite the increased access to breast cancer screening in rural and remote areas, only around five percent of women aged 45 or above have been screened for breast cancer.

Box 4.1. Breast Cancer Screening Program and Mobile Mammography in Kosovo

The mobile mammography in Kosovo commenced its functions in October 2014, almost 30 years after the first mammograph in Kosovo during 1985. The service was inaugurated by GruIi i Grave Deputete (Parlamentary Women of the fourth legislature) in collaboration with the Kosovo Center for Fighting Breast Cancer "Jeta/Vita."

The implementation of this project was made possible by the "Ma-Mo 1" project near the UCCK until 2019 when it was stopped due to COVID-19. The mobile mammography team is multidisciplinary; it includes radiologists, radiology technicians, drivers, engineers of the mammography equipment, and nurses. The services are provided free of charge, and the mobile nature of the program eliminates payments related to transportation from women's villages to the UCCK. Moreover, the coordination of the program through an organized waiting list prevents women from exposure to crowds and long-waiting times, which were relevant in the COVID-19 pandemic.

The mobile mammography has visited 34 out of the 38 municipalities in Kosovo, and benefited women from over 600 villages in Kosovo. Forty-one percent of examined women were from rural areas, and around 14% were from a non-Albanian majority, ensuring widespread access regardless of location and ethnic background. Out of some 11,000 examinations, 109 new breast cancer cases have been detected.

The program's success resulted in the creation of "Ma-Mo 2," a referral center at the UCCK offering more comprehensive services like ultrasound, the magnetic resonance of the breast, fine-needle aspiration biopsy-FNAB, core-needle biopsy-CNB, wire localization, and galactography. The program continues to expand and counts now with "Ma-Mo 3," an expansion of the program that includes telemammography. The former has been piloted with MFM patients at the Gjakova Municipality, where mammography was performed to be later analyzed by radiologists of UCCK. To date, more than 2000 telemamographies have been performed.

Source: Doctor Chambers Journal: Oncology.

Cervical cancer screening has expanded across the country. In 2016, the program for early detection of cervical cancer started as a pilot in the municipality of Prishtina. The program, supported by the UNFPA and Action for Mothers and Children (AMC) has expanded to Prizren, Mitrovica, and Peja from 2018 to 2020. Similarly to the breast cancer program, screening for cervical cancer is free. To attract more women, an awareness campaign spreads information through SMS at universities, public institutions, and mass media like TV, radio, and online platforms.

Less than one percent of eligible women have been tested for cervical cancer. Although the cervical cancer screening program has performed over two thousand screenings, only 0.56 percent of eligible women (aged 25-65) have been screened for cervical cancer. The low screening rate aligns with the similar rate of women receiving the HPV vaccine described above and stresses the need for nationwide screening programs.

Nearly all lung cancer cases are diagnosed at advanced and inoperable stages. Over 90 percent of the new lung cancer cases are diagnosed at stages when the cancer cells have spread to other body organs. Although it is common for lung cancer to be diagnosed at late stages due to the lack of severe symptoms at the beginning of the disease, the figure is considerably higher than that of aspirational EU peers. For instance, a study conducted in Croatia revealed that around two-thirds of patients were diagnosed at stages IIIb or IV, meaning that the cancer was unresectable or migrated to other organs (Seiwerth et al. 2021). In Lithuania, advanced lung cancer represented only 37.8 percent of new cases between 2008 and 2012, with a similar figure (39.5 percent) in Estonia and a slightly lower one in Slovenia (29.7%) (Debevec et al. 2005; Gedvilaitė et al. 2019; Zimmermann et al. 2021).

Screening for other chronic conditions is not systematically implemented. Although detecting high blood glucose has been performed along with health educational campaigns, there is no evidence that Kosovo implements screening for conditions such as diabetes and hypertension (Accessible Quality Healthcare 2021). However, it has been reported that patients with diabetes receive routine blood glucose measurements. Above eighty percent of patients with diabetes reported regular visits to the doctor, yet examinations for complications (secondary prevention) are low, as only 17 percent reported having their feet examined. Moreover, self-monitoring of blood glucose is limited to 78.2 percent of patients with diabetes, most of them (74.1 percent) reporting having to buy their blood glucose meter and only 4.2 percent receiving it from organizations or donors (KOSANA n.d.).

Prevention and early detection remain opportunistic, exposing Kosovars to late diagnosis and more severe conditions. The limited infrastructure and lack of a national NCD prevention campaign have caused efforts to be conducted in silos and highly reliant on international partners. Similarly, although key interventions to prevent cancer, such as HPV vaccination, are available in the country, these have not been fully exploited. The missed opportunity to promote health and detect chronic conditions at an early stage has led NCDs to progress in those affected, evidenced by late diagnosis that poses a major risk of death, particularly in the case of malignant tumors.

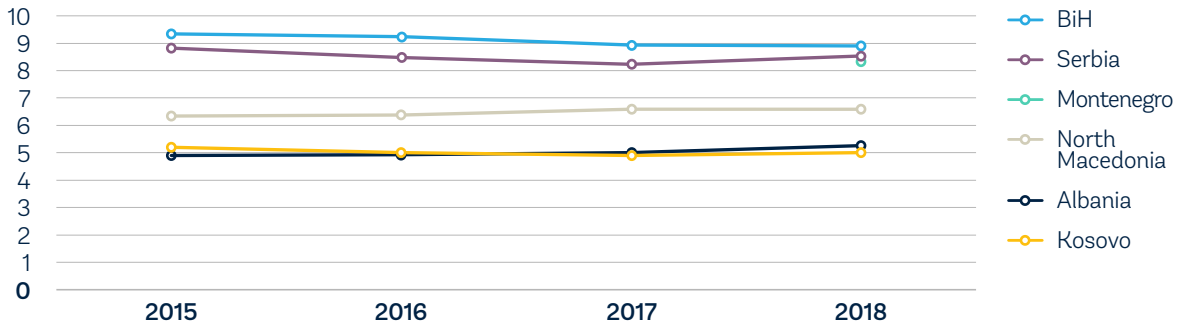
Management of Noncommunicable Diseases

Background

Kosovo's health system is characterized by low health expenditure and a high reliability on out-of-pocket (OOP) payments. Total health spending is the lowest in the region and relies heavily on out-of-pocket expenditure (Hoxha et al. 2012). The share of GDP for health expenditure has remained stagnant over the last years, representing the lowest compared to Western Balkans peers (Figure 5.1).

Figure 5.1 Total health expenditure as share (%) of GDP

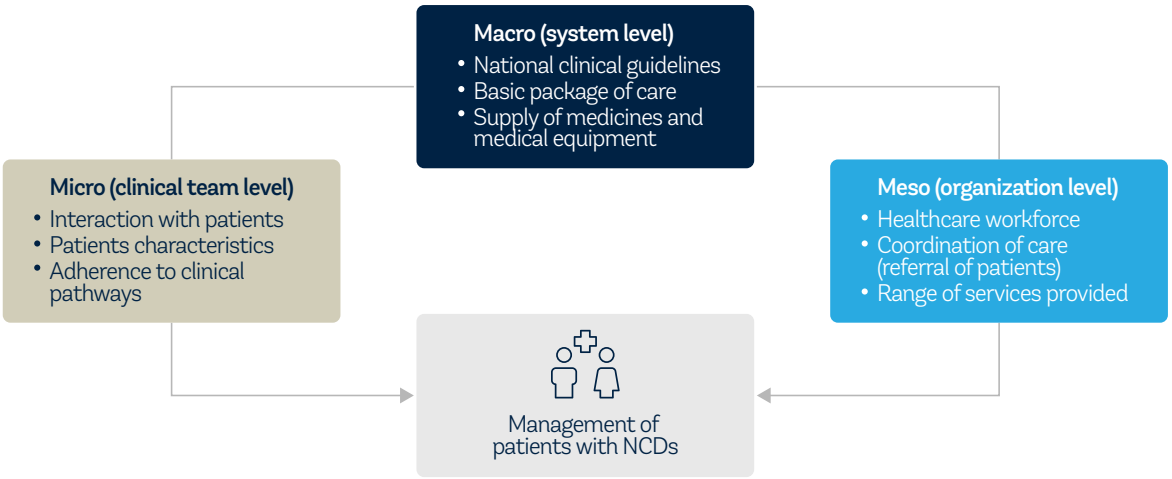
Source: Kosovo Health Insurance Fund Financing Plan 2022-2026; and WHO



Factors at the three structural levels of the health system influence NCD management. The health outcomes of patients with chronic conditions are influenced by factors at the health system's macro-, meso-, and micro levels (Fulop and Robert 2015). The macro level relates to factors at the system level, such as the formulation of policies, basic package of care, and supply of medicines to healthcare facilities. The meso level revolves around factors at the organization or facility level, which is responsible for hiring enough healthcare personnel, coordinating care with other levels of care or the private sector, and providing enough NCDs services. The micro level includes decisions at the clinical level, including interaction with patients, patient characteristics, and adherence to clinical pathways. The remainder of this chapter describes the management of NCDs in Kosovo according to the conceptual framework shown in Figure 5.2.

Figure 5.2 The conceptual framework for analysis of NCD management in Kosovo

Source: Authors



MACRO LEVEL

The number of national clinical guidelines is limited and does not cover all significant NCDs. The Kosovo Hospital and University Clinical Services (KHUCS) has developed clinical guidelines for treating certain chronic conditions (Table 5.1); however, there are still diseases that lack standardization of care. Further, the existing guidelines miss other significant conditions contributing to the burden of disease of NCDs, such as breast and lung cancer (see Chapter 3). Although efforts have been made to expand the number of national clinical guidelines, some have remained in the planning stages. One of the reasons for this is that stakeholders lack awareness and/or knowledge of clinical guidelines (Moore et al. 2016).

Table 5.1 Officially approved clinical guidelines

Clinical guidelines	Approved date
Screening and treatment of precancerous cervical (cervix uteri) damages	2018
Management of arterial hypertension	2018
Management of asthma	2018
Non-pharmacological management of diabetes	2018
Pharmacological management of adult type 2 diabetes	2020
Treatment of ischemic brain disease	2020

Source: Ministry of Health.

Obstacles to the implementation of the guidelines take several forms. First, lack of communication between physicians and ministry representatives was blamed for duplication of effort in developing or adapting guidelines and significant mistrust between clinicians and policymakers. Second, there was inadequate communication and integration across the entire healthcare system in rural and urban areas among clinical groups that offer care. Third, the conflict significantly impacted Kosovo's healthcare infrastructure, making it impossible to assess care quality across the country (Straus et al. 2013). The creation of multidisciplinary working groups involving key actors, including physicians and decision-makers, will be fundamental in developing additional guidelines to improve the quality and standardization of care.

Kosovars can freely access most services in the public sector, but services are not always available, leading to OOP expenses. Kosovars are entitled to receive care in all public health facilities and a restricted treatment package when traveling overseas. However, Kosovars are highly dependent on OOP expenses to pay for pharmaceuticals. According to World Bank estimates, in 2017, OOP spending on pharmaceuticals was estimated to be 43 EUR per capita, accounting for 70 percent of total OOP spending. On the other hand, the OOP spending on overseas treatment accounted for 8 percent of total OOP expenses (8.3 million EUR) in 2017.

Hospitals have long-standing problems accessing necessary drugs supplied by the Ministry of Health (MoH), including drugs from the essential drugs list. A recent World Bank analysis of the pharmaceutical consumption and funding in Kosovo highlighted inadequate monitoring of use of drugs in public health care facilities, including the patients' ability to obtain prescription medicines at private pharmacies without prescriptions. Moreover, the lack of an institution

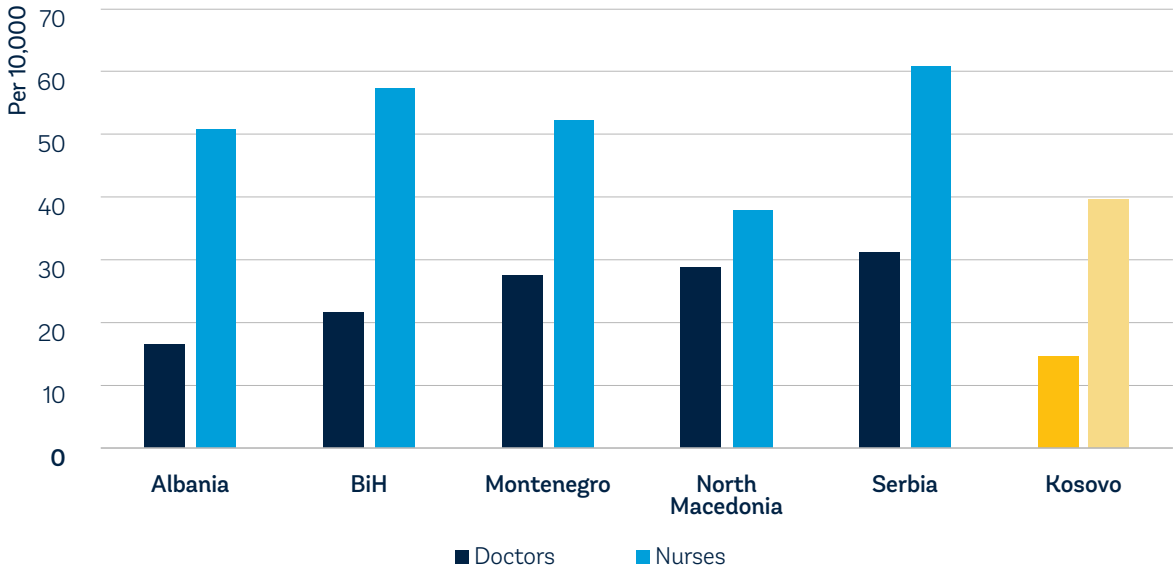
to regulate the prices of pharmaceuticals leads to higher prices than peers references. Additionally, the healthcare system is underfunded, and consequently, hospitals and primary health care centers lack medical supplies and treatment for chronic conditions. For example, the unsustainability of supplying the required resources for breast and cervical cancer has resulted in inconsistent use of anti-cancer drugs (Sofia Stanculescu et al. 2014).

MESO LEVEL

Health workforce migration has left the country with one of the lowest workforces in Europe, while actions to increase staff retention are scarce. Kosovo has the lowest number of doctors per 10,000 population compared with Western Balkans peers. Similarly, the number of nurses is among the lowest, just above North Macedonia (Figure 5.3). The medical staff's capacities and clinical competence are another domain where advancement is needed to increase their skills and retention in the country (O'Hanlon and Budosan 2011).

Figure 5.3 Number of doctors and nurses per 10,000 population in 2019 or latest available

Source: WHO



Dual practice and referral from public to self-owned private clinics are common among physicians. In addition to having a limited number of healthcare personnel, physicians usually engage in dual practice, referring patients to their private practice, decreasing the efficiency of public health services and putting the most vulnerable at risk of impoverishment due to higher healthcare costs. Investigations by the media revealed that following the first visit to a public health facility, doctors and employees directed patients to private clinics run by themselves, their colleagues, or contacts. Data from the Report on Kosovo's Healthcare System published in 2009 confirmed a relationship between public health workers and privately operated clinics. Besides referral to seek healthcare services in the private sector, there are also cases of referral by family doctors to buy presumably inadequate or unnecessary prescribed medicines in certain pharmacies (Farnsworth et al 2016). This often happens for diagnostic services (Begolli and Arën–iu – Qosaj 2011).

Delivery of NCD interventions is fragmented, resulting in deficient referral mechanisms. The patient's journey is perplexing, inefficient, and ineffective from the initial presentation to the final therapy (Davies, Ahmedi, and Berisha 2015). Despite legislative attempts to encourage consultation and referral from primary care, self-referral to secondary or tertiary clinics persists. According to the Action Plan for The Health Sector Strategy 2010-2014, there are no precise mechanisms to refer patients from the public to the private sector, situation that persists in current times. The administrative Instruction 08/2017 regulates the referral process from primary to secondary health care (Sami 2018), but a counter-referral from secondary to primary health care is not generally performed (Percival and Sondorp 2010). An additional contributor to the lack of coordination between different levels of healthcare for NCDs is the lack of a functional Health Information System (HIS) (Selimi and BIRN 2012). Furthermore, diagnostic support is frequently unavailable or difficult to obtain, resulting in patients seeking care in private facilities located in Kosovo's capital (Knowles and Parker 2008).

Counseling services are scarce due to the limited trained workforce and rely on international partners. Overall, there is limited service capacity in the primary and secondary prevention of NCDs, worsened due to the lack of competent medical staff, especially nurses, who can counsel patients with chronic conditions (Hoxha 2013). The Accessible Quality Healthcare (AQH) Project in Kosovo has implemented motivation counseling sessions for diabetes and hypertension patients in primary care (Obas, Gerold, and Bytyci-Katanolli 2021). Before that, in 2001, Dartmouth Medical School partnered with Kosovar nurses on a two-year project to rebuild primary health care in Gjilan. The project invested in training them to gain new skills, especially how to teach patients about lifestyle changes associated with controlling hypertension (Pond et al. 2016). These initiatives emphasize the reliance on international partners and the lack of a national strategy to upskill the current healthcare workforce.

MICRO LEVEL

Minority ethnic and vulnerable population groups have a more challenging time accessing healthcare. The Bosnian, Roma, Ashkali, Egyptian, and Gorani communities have faced the greatest economic impediments (Farnsworth, Goebbels, and Ajeti 2016), resulting in serious healthcare access issues (François-Xavier Bagnoud Center for Health and Human Rights and University 2014; All 2011). Access is not limited only to ethnic groups. According to the WHO, all Kosovars have access to healthcare, but this is not the case for those living in poverty, the elderly, people with disabilities, and those living in remote areas, who typically have trouble accessing health services (François-Xavier Bagnoud Center for Health and Human Rights and University 2014). Regarding gender equality, rural women face higher financial, cultural, and patient-provider relationship hurdles than males or urban women regarding healthcare (Farnsworth 2008; Farnsworth et al. 2016; Luta and Draebel 2013).

Healthcare staff and patients agree that informal payment for NCDs exists in Kosovo's public health care sector. The frequency of such payments differs depending on the types of medical services (Uka and Health Policy Institute 2014). Doctors contend that low pay, lack of government attention, and the need to keep services flowing require significant improvements, and patients' contributions can help to cover these needs. On the other hand, informal patient payments have no bearing on the equality and quality of healthcare delivery. Although patients may believe that those who pay receive better care than those who do not, doctors claim that this does not occur and that everyone receives equal therapy (Uka and Health Policy Institute 2014).

The adherence to treatment guidelines for diabetes and hypertension is deficient due to limited infrastructure and population awareness. Health care workers miss performing the necessary examinations regularly. Early diagnosis use in the treatment of diabetes may also reflect the lack of diagnostic equipment or institutional capacities in diabetes diagnosis and management (Swiss Development Corporation 2014). The situation with hypertension is similar to diabetes, as the diagnosis depends on the population's awareness of hypertension risk, preventive care, and medical interventions (USAID 2008; Bielecka-Dabrowa et al. 2011).

Management of hypertension does not follow a personalized delivery of care. Individuals and patients need to be stratified according to their exercise blood pressure response, which could significantly impact their optimum management strategies to secure the best clinical outcome (Bielecka-Dabrowa et al. 2011). Assessment of the quality of clinical examinations reveals shortcomings in assessing and examining patients – for example, incomplete anamnesis and physician examination, and lack of proper recording of findings for individual patients. Also, issues relating to the hazards of untreated disease were less frequently explained to patients (Bielecka-Dabrowa et al. 2011).

The health care system provides only basic diagnostics and treatment of NCDs with no clearly defined patient-centered clinical pathways. As a result, NCDs such as diabetes mellitus and/or hypertension are often undiagnosed. Cancer is diagnosed in late stages when the outcomes and prognosis are worse. This raises questions regarding management capacities to use the diagnostic systems and improve diagnosis levels. Moreover, patient care and follow-up are provided individually by individual clinicians in the public or private sector. The patient's journey is not clear-cut. Despite legislative attempts to encourage consultation and referral from primary care, self-referral to secondary or tertiary clinics persists. Diagnostic support is frequently unavailable or challenging to obtain at the point of presentation, necessitating the use of private facilities. Consequently, patients who can afford higher costs seek care in the increasing private sector without guaranteeing a better quality of care.

Challenges at all levels of care limit the management of patients with chronic conditions. The low health expenditure and high reliance on out-of-pocket payments are just one of the many barriers patients face when accessing health care. Structural barriers at the macro, meso, and micro levels indicate that efforts to improve the management of NCDs require a holistic approach that addresses the main issues reported. Particular attention should be placed on protecting the most vulnerable populations such as the Roma, Ashkali, and Egyptian communities.

Policies and regulations

Background

The global impact of NCDs has accelerated the implementation of policies and regulations to reduce the harmful impact of products directly linked to NCDs, such as tobacco and alcohol consumption. As a result, in 2017, the WHO released a set of evidence-based recommendations for policies to reduce the burden of NCDs that would cost ≤ I$[5] 100 per DALY averted in low- and middle-income countries (Table 6.1). These recommendations have shown to have both an economic benefit through the increase in public revenue and a reduction in morbidity and mortality due to NCDs. Consequently, countries would observe a decrease in hospital admissions and need for health care of patients with chronic conditions (World Health Organization 2017).

Table 6.1 Recommended interventions for reducing tobacco and alcohol consumption costing ≤ I$ 100 per DALY averted

Product	Recommendations
Tobacco	• Increase excise taxes and prices on tobacco products. • Implement plain/standardized packaging and/or large graphic health warnings on all tobacco packages. • Enact and enforce comprehensive bans on tobacco advertising, promotion and sponsorship. • Eliminate exposure to secondhand tobacco smoke in all indoor workplaces, public places, and public transport. • Implement effective mass media campaigns that educate the public about the harms of smoking/tobacco use and secondhand smoke.
Alcohol	• Increase excise taxes on alcoholic beverages. • Enact and enforce bans or comprehensive restrictions on exposure to alcohol advertising (across multiple types of media). • Enact and enforce restrictions on the physical availability of retailed alcohol (via reduced hours of sale).

Source: WHO 2017

This chapter explores the existing policies and regulations on tobacco, consumption of alcohol and sugar-sweetened beverages, and air pollution in Kosovo. The information presented in this chapter is based on the consultation of publicly available data on Kosovo's MoH and Government websites, along with evidence collected from scientific databases and grey literature. The findings of the existing policies in Kosovo are described and compared with the "best buys" shown in Table 6.1. Moreover, examples and peer benchmarking are presented to provide a more comprehensive understanding of how tobacco and alcohol policies have impacted the population's health.

5 An international dollar is defined as the currency unit that has the same purchasing power (amount of goods and services that can be purchased) as the US dollar in the United States.

POLICIES AND REGULATIONS FOR TOBACCO

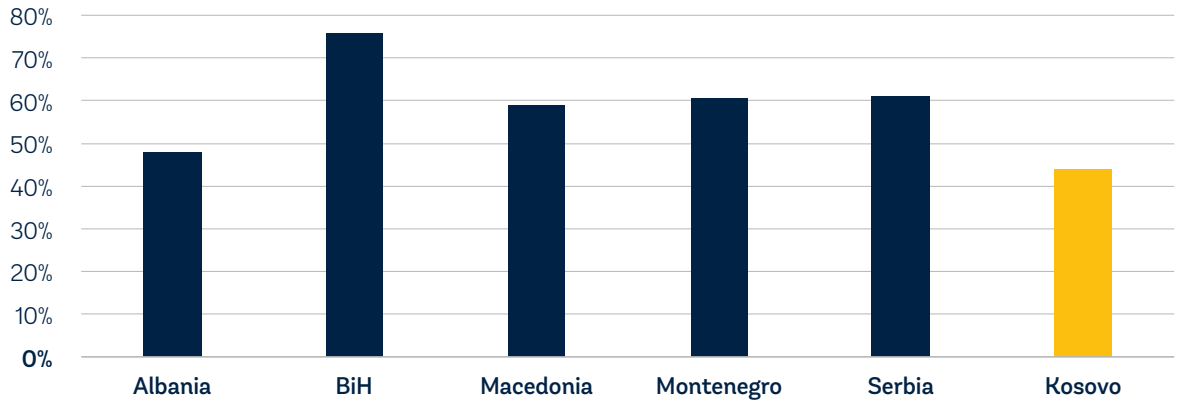
Regulations on tobacco products have been in place for almost two decades. In 2005, Kosovo introduced the first policy to protect the population from the harmful impact of tobacco. The law No. 02/L-36 aimed to address the enabling factors of tobacco consumption in children, youth, and others, increase public knowledge and awareness of the health risks of tobacco consumption, reduce secondhand smoking, and regulate the distribution of tobacco in the country (Assembly of Kosovo 2001). This law was later replaced in 2013 by law No. 04/L-156, which remains the current law on tobacco control. This law determines the measures for the prohibition, restriction of tobacco products, tobacco ingredients, prevention of harmful consequences from the use of tobacco products, and supervision for the implementation of the law (Republic of Kosovo, n.d.).

Warnings on tobacco products cover less than half of packages and are lower than regulations in the European Union. According to the law on tobacco control (No. 04/L-156), packaging of tobacco products should include a warning with at least one general remark – smoking kills or smoking causes premature death, and one additional remark – smoking causes cancer, smoking is an addiction. Although the warning messages align with the European Union's, the percentage covered by these warnings is lower. The law on tobacco control states that the remark (warning) on the front primary side of the pack of tobacco products should cover 32 percent and that on the back of the pack 45 percent, while EU regulations require 65 percent of both front and back sides (European Commission n.d.).

Excise tax on tobacco products is applied in Kosovo, yet it remains below the EU regulations. Taxation of tobacco has shown to be the most effective strategy to reduce its harmful impact on health, and it is associated with a reduction in the prevalence of smokers and the incidence of lung cancer (WHO n.d.). In Kosovo, law No. 03/L-112 stipulates the excise tax rate for various products, including tobacco and alcohol. Based on this law, cigarettes were initially charged 25 EUR per 1,000 cigarettes in 2010 and increased to 51 EUR per 1,000 cigarretes by 2022. Despite the higher tax applied to tobacco products, in 2018, excise tax represented only 44 percent of the retail price of the weighted average price of cigarettes, which is lower than Western Balkans peers (Figure 6.1) (Tobaccotaxation 2018; Palushi et al. 2018). In 2022, the excise tax for cigarretes increased to 52.6 percent, but remains lower than the EU benchmark of 60 percent and far below the 75 percent figure recommended by the WHO (European Commission n.d.; WHO Regional Office for Europe n.d.).

Figure 6.1 Percentage of excise tax in weighted average price of cigarettes in 2018

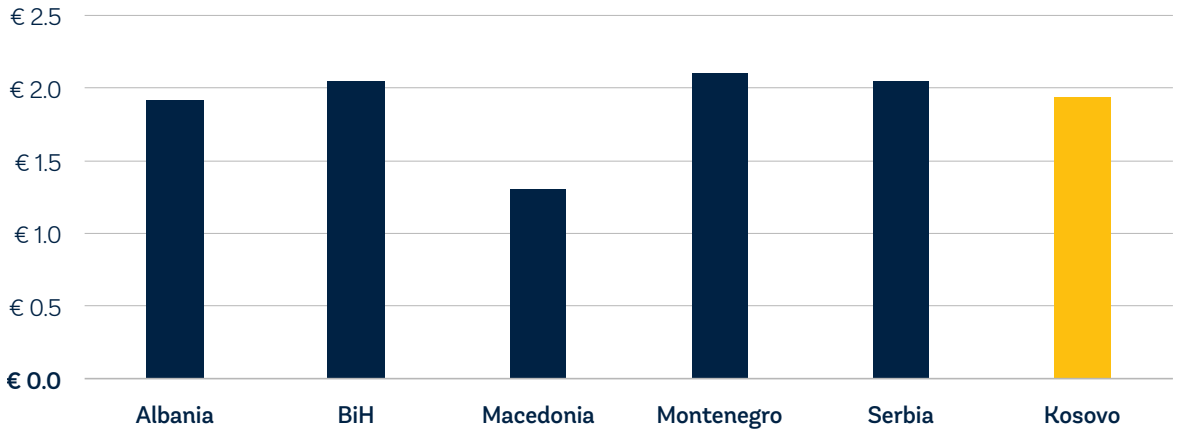
Source: Tobaccotaxation 2018



The current excise tax does not change smokers' behavior and maintains a low price for tobacco products. Despite the increase in tobacco tax in 2019, most smokers (85.1 percent) did not change their behavior. Only 6.5 percent reported consuming less, while less than two percent temporarily quit smoking. On the other hand, around 4 percent of the surveyed population decided to switch to a cheaper brand due to the tax increase (Prekazi and Pula 2020). The minimal impact of tobacco prices on smoking behavior could be explained due to the lower weighted average price for cigarettes compared to its regional peers (Figure 6.2).

Figure 6.2 Weighted average price of a pack of cigarettes in the Western Balkans

Source: L Palushi et al. 2018



Increasing the prices of cigarettes would reduce smoking and increase government revenue. A 25 percent price increase in cigarettes through raising excise tariff from 43 EUR in 2017 to 63.6 EUR per 1,000 cigarettes would result in an 11.1 percent reduction in tobacco consumption (Prekazi and Pula 2020). Moreover, this would mainly benefit the lower- and middle-income groups by reducing their consumption by 16.3 percent and 18.4 percent, respectively. The 25 percent price increase would also translate into higher government revenue, from 160.5 million EUR in 2017 to 202.6 million EUR, or a 26.2 percent increase.

Kosovo has achieved significant milestones in tobacco regulation, but there is still space for improvement. The policies described above demonstrate the emphasis Kosovo has placed on protecting the population from the harmful impact of tobacco. Although the current laws capture the principal regulations formulated by the WHO best buys, the current status for most of them remains below recommendations or standards from the WHO and EU (Table 6.2). As presented in Chapter 1, Kosovo has a young population that would significantly benefit from stricter measures on tobacco control, particularly as it is estimated that three out of four high school students who start smoking will become adults who smoke (Warren et al. 2014).

Table 6.2 Status of the policies on tobacco products in Kosovo compared to WHO best-buys

Regulation	Status	Rationale	Reference
Increase excise taxes and prices on tobacco products.	◐	Excise tax on tobacco products is applied but remains below international standards.	Law No. 03/L-112
Implement plain/standardized packaging and/or large graphic health warnings on all tobacco packages.	◐	Health warning remarks are present on tobacco products but remain below international standards.	Law No. 02/L-36
Enact and enforce comprehensive bans on tobacco advertising, promotion, and sponsorship.	●	Advertizing, promoting, and sponsorship of tobacco products are banned.	Law No. 02/L-36
Eliminate exposure to secondhand tobacco smoke in all indoor workplaces, public places, and public transport.	◐	Smoking in public areas is prohibited; however, law enforcement remains compromised.	Law No. 02/L-36
Implement effective mass media campaigns that educate the public about the harms of smoking/ tobacco use and secondhand smoke.	●	Public and private media are obliged to broadcast educational programs on the harmful effects of tobacco.	Law No. 02/L-36

Note: ◐ = Present but partially implemented; ● = present and fully implemented.

Source: Produced by the authors

POLICIES AND REGULATIONS FOR ALCOHOL

Excise taxes on most alcohol products are higher in Kosovo than in Western Balkans peers. Excise duty on alcohol can be formulated through different mechanisms; however, the most commonly used among Western Balkans countries are per alcohol, the volume of pure alcohol, and the volume of the finished product. As shown below in Table 6.3, Kosovo imposes an excise tax on alcohol based on the level of pure alcohol in beer, wine, and spirits. Although the highest beer price is in Montenegro, Kosovo has the highest share of tax rate (19.4 percent). Similarly, tax rates for wine in Kosovo are the highest (11.5 percent), though only three countries are implementing excise tax on this product. On the other hand, Kosovo has the lowest tax on spirits (9.6 percent) and is considerably below Montenegro (35.8 percent), which reported the highest tax rate among the Western Balkans (Kilian et al. 2021).

Table 6.3 Tax structure, mean price, and share of the tax rate in mean price per alcoholic beverage for Western Balkans

	BEER			WINE			SPIRITS		
	Tax structure	**Mean price (I$/L)**	**% Tax**	**Tax structure**	**Mean price (I$/L)**	**% Tax**	**Tax structure**	**Mean price (I$/L)**	**% Tax**
Albania	Per alcohol	6.50	13.5%	Finished product	29.78	2.5%	Pure alcohol	29.36	21.8%
Bosnia and Herzegovina	Finished product	7.21	4.1%	Finished product	32.1	1.2	Pure alcohol	37.51	23.8%
Kosovo	Pure alcohol*	6.20	19.4%	Pure alcohol*	16.37	11.5%	Pure alcohol*	37.61	9.6%
Montenegro	Per alcohol	8.6	8.5%	No excise duty	40.42	0%	Pure alcohol	48.81	35.8%
North Macedonia	Finished product	4.2	5.1	No excise duty	6.18	0%	Pure alcohol	45.58	15.9%
Serbia	Finished product	5.93	10.7%	No excise duty	17.68	0%	Finished product	30.35	10.8%

Note: * Pure alcohol content by beverage: 5% for beer, 12.5% for wine, and 40% for spirits.

Source: Kilian et al. 2021.

The excise tax on beer is among the highest compared to EU countries, yet excise tax for spirits is the lowest. Despite Kosovo having the highest excise tax on beer in 2020 among its Western Balkans peers, the government of Kosovo increased it further in 2022. The excise tax for a 330 ml bottle of beer of 5 percent alcohol by volume (ABV) increased from 0.08 EUR before 2022 to 0.13 EUR in 2022 (Figure 6.3), doubling the excise tax of countries like Czech Republic, Spain and Germany. In contrast to beer, the excise tax on spirits is among the lowest despite an increase in 2022 (Figure 6.4).

Figure 6.3 Excise tax in European Union countries and Kosovo for beer in 2021

Source: Local World Bank data and European Commission 2021a

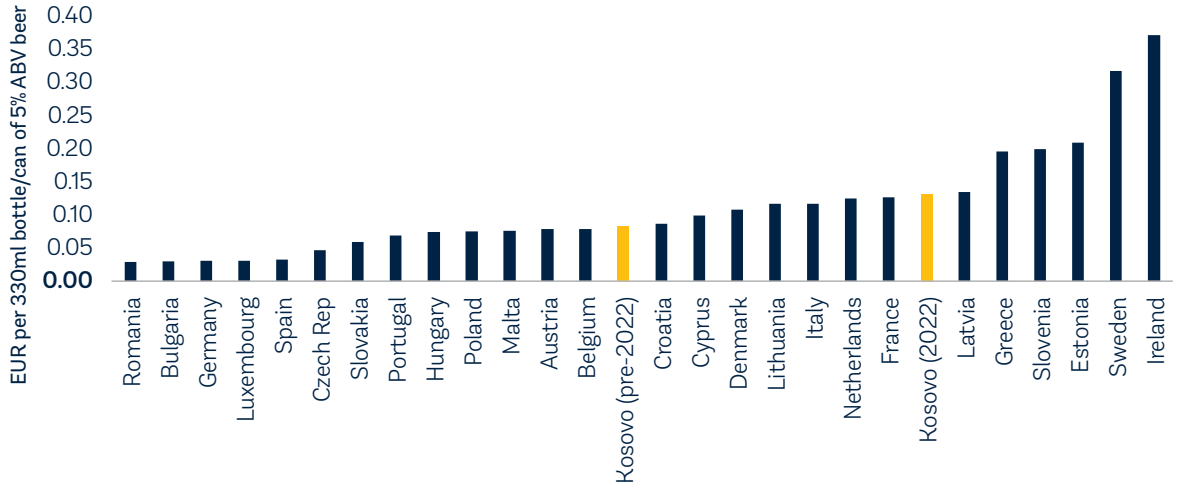


Figure 6.4 Excise tax in European Union countries and Kosovo for spirits

Source: Local World Bank data and European Commission 2021a

Regulations for alcohol are limited and do not align with international standards. Although excise taxes for beer are among the highest in Europe, the figure for spirits remains among the lowest compared to peers. Similarly, bans on advertising are limited to billboards, with no evidence of bans on doing so on mass media such as radio, television, or newspaper. The current regulation (RR-110-2782-K.PR) is applied at the municipal level, and there is no national strategy for imposing restrictions on exposure to alcohol. Lastly, there is no evidence of restrictions on the physical availability of related alcohol. Table 6.4 summarizes the status of policies according to the WHO best-buys.

Table 6.4 Status of the policies on alcohol products in Kosovo compared to WHO best-buys

Regulation	Status	Rationale	Reference
Increase excise taxes on alcoholic beverages.	◐	Excise taxes on alcoholic beverages are applied but remain considerably low for spirits.	Law No. 03/L-220
Enact and enforce bans or comprehensive restrictions on exposure to alcohol advertising across multiple types of media.	◐	Advertising of alcoholic products is banned from billboards, but there is no evidence of bans from other media types.	RR-110-2782-K.PR
Enact and enforce restrictions on the physical availability of retailed alcohol via reduced hours of sale.	○	No evidence of restrictions on the physical availability of retailed alcohol.	N/A

Note: ◐ = present but partially implemented; ● = present and fully implemented; ○ = not implemented.

Source: Produced by the authors.

POLICIES AND REGULATIONS FOR AIR POLLUTION

Several policies to reduce emissions and exposure to air pollutants have been introduced in the last decades. Kosovo introduced the first legislation regarding air pollution in 2009, with the Law on Environmental Protection (LEP) that mandates the government to implement regulations to limit emissions and monitor air quality. The LEP also outlines the organisms and responsibilities Ministry of Environment and Spatial Planning (MESP), which include the systematic measurement, analysis and evaluation of environmental quality indicators. Following the introduction of the LEP, Kosovo has witnessed several laws, strategies, plans and standards described in Table 6.5.

Table 6.5 Laws, strategies, plans, and standards introduced to improve air quality

Name	Year
Law on Environmental Protection	2009
Law on Air Protection for Pollution (LAPP)	2010
LAPP Complementary Instruments	
Air Quality Strategy	2013-2022
Air Quality Action Plan (AQAP)	2018-2022
Local Air Protection Action Plans	n.a.
Reports on AQAP implementation	n.a.
Administrative Instruments	
AI No. 06/2007 on the Rules and Standards of the Discharges on Air by the Stationary Sources of Pollution	2007
AI No. 04/2009 on Control of Volatile Organic Compounds Emissions During the Storage, Filling, Discharging, Packaging, and Transfer of Fuels	2009
AI No. 15/2010 Criteria for Defining of Air Quality Monitoring Points, Number and Frequency of Measurement, Classification of Pollutants which are Monitored, the Methodology of Work, Form, and Timing of Data Reporting	2010
AI No. 02/2011 on Air Quality Assessment	2011
AI No. 21/2013 for Arsenic, Cadmium, Mercury, Nickel, and Polycyclic Aromatic Hydrocarbons in Air	2013
AI No. 08/2016 for the Allowed Norms of Discharges in Air from Mobile Sources	2016
AI No. 01/2017 on Fuel Quality	2017

Source: World Bank, 2017

Air quality standards adhere to international recommendations, yet Kosovars continue being exposed to significant high concentrations of air pollutants. Air quality policies have been mainly transposed from the EU Directives to domestic legislation. For example, the threshold of the main air pollutants with proven harmful health effects is similar to both EU and WHO standards (Table 6.6). However, Kosovo's reality is far from meeting its own air quality standards (see Chapter 2). Some of the main barriers to ensure Kosovars are not exposed to harmful levels of air pollutants are the lack of human and financial resources, and lack of coordination among different government levels in the implementation of Kosovo's AQAP (World Bank 2017).

Table 6.6 Thresholds for air pollutants concentrations in Kosovo, the EU, and the WHO

Pollutants	Averaging period	Kosovo	EU	WHO
PM10	Annual average	40 µg/m3	40 µg/m3	20 µg/m3
	24 hours	50 µg/m3	50 µg/m3	50 µg/m3
PM2.5	Annual average	25 µg/m3	25 µg/m3	10 µg/m3
O3	Maximum daily 8 hours average	120 µg/m3	120 µg/m3	100 µg/m3
NO2	Annual average	40 µg/m3	40 µg/m3	40 µg/m3
	1 hour	200 µg/m3	200 µg/m3	200 µg/m3
SO2	Annual average	125 µg/m3	125 µg/m3	20 µg/m3
	1 hour	350 µg/m3	350 µg/m3	500 µg/m3
CO	Maximum daily 8 hours average	10 µg/m3	10 µg/m3	10 µg/m3

Source: World Bank, 2017

POLICIES AND REGULATIONS FOR SUGAR-SWEETENED BEVERAGES (SSBs)

Excise tax on SSBs beverages is low and is not applied to all products. The excise tax on SSBs was increased in 2022 from 0.045 EUR to 0.05 EUR per liter; however, it remains below EU countries applying taxes on these products. For example, in Belgium, the excise tax for SSBs was 0.68 EUR per liter, while in Finland was 0.75 EUR per liter (WHO 2022). Moreover, the low excise tax is not applied to all SSBs, as fruit juices are exempt from this tax despite their high concentrations of sugars.

Regulations on tobacco products fail to meet international standards; policies on alcohol and SSBs are insufficient. The introduction of laws on tobacco control in the last two decades is relevant to progress, but these regulations remain below international norms, leaving significant room for improvement. Special attention should be placed on increasing excise tax on tobacco products and enforcing secondhand smoking in public places. Like tobacco products, the excise tax on certain alcohol products and SSBs is considerably low, compared with regional peers.

Air pollution policies align with EU directives, yet the enforcement of laws and plans to achieve air quality standards remains poor. The country has developed regulations to improve air quality according to the EU standards, but, in practice, the implementation of actions to achieve those standards has been unsuccessful. Kosovars continue to be exposed to considerably high levels of air pollutants, increasing their risk for chronic conditions.

RECOMMENDATIONS

Recommendations

Addressing NCDs requires a comprehensive approach to promoting healthy lifestyle, improving prevention and delivering effective disease management. The analysis showed major barriers to the delivery of care including the lack of infrastructure at health care institutions, low use of screening services, and lack of coordination between the different levels of care and the public and private sectors. Moreover, the current policies on NCD risk factors, such as tobacco and alcohol consumption, either failed to align with international standards or are not enforced effectively. The rest of this chapter outlines recommendations to address these barriers and protect Kosovars from the increasing burden of NCDs. Table 7.1 summarizes these recommendations, suggested time frame, and key stakeholders involved.

Table 7.1 Recommendations, time frames, and relevant stakeholders to reduce the burden of NCDs in Kosovo

Recommendation	Time frame goal	Responsible(s) and relevant stakeholders
Implement a rigorous national campaign on prevention of smoking.	Short term	Ministry of Health, NIPH
Develop condition-specific registries to improve data quality and monitoring of NCDs.	Short term	Ministry of Health, NIPH
Implement lists of patients at primary care facilities for better disease management.	Short term	Ministry of Health, NIPH
Develop tailored prevention and screening services driven by a national strategy for NCDs.	Medium term	Ministry of Health, NIPH
Incorporate the national pilot screening program on breast and cervical cancer throughout the country.	Medium term	Ministry of Health.
Develop an integrated information system across healthcare institutions to improve coordination of care.	Medium term	Ministry of Health.
Develop standardized clinical protocols and build the infrastructure to provide evidence-based care.	Medium term	Ministry of Health, NIPH, International Partners, Academic institutions.
Enhance the monitoring and enforcement of policies to reduce tobacco and alcohol consumption, while increasing taxes of harmful products to international standards.	Medium term	Ministry of Health, NIPH, Ministry of Internal Affairs.
Develop strategic planning for human resources for health to improve attraction and retention of healthcare workers.	Medium term	Ministry of Health, International Partners.
Build service capacity and increase access to mental health care.	Medium term	Ministry of Health, International Partners.
Accelerate the implementation of air quality plans to reduce exposure to harmful concentrations of air pollutants.	Long term	Ministry of Environment and Spatial Planning, Ministry of Finance.
Advance health financing reforms to enable adequate resources and strategic purchasing for quality services.	Long term	Ministry of Health, Ministry of Finance, Ministry of Economy.

Implement a rigorous national campaign on prevention of smoking. Smoking is a major problem in Kosovo. Kosovars from a young age are being exposed to the harmful health effects of secondhand smoking, while a significant number of adults are exposed to public places such as bars and restaurants. In addition to enhancing the enforcement of current laws, the development of a national campaign on prevention of smoking will reduce the number of Kosovars initiating smoking and motivate more to stop smoking. Successful campaigns serve as an example of how to increase the number of teenagers and adults avoiding smoking despite resistance from the tobacco industry (Box 7.1).

Box 7.1. The success of the "truth" campaign in the United States

In the United States, the "truth" campaign was developed to reduce the number of new smokers, particularly among teenagers and young adults. The campaign was co-developed to ensure that perspectives of these groups were taken into account and reflected in the media. Moreover, these ads were supported by scientific evidence suggesting the effect of counter-marketing, including the fact that the tobacco industry has been aware of the damaging health effects of its products.

One of the ads with the highest impact exposed the social costs and health effects of the products by showing a group of teenagers pulling up 1200 body bags, representing the daily toll due to tobacco consumption. Another ad showed teenagers with a lie detector asking to meet with the marketing department, evoking the moment when tobacco leaders stated that tobacco is not addictive before a television audience.

The truth campaign, which started in the state of Florida, was then escalated at the national level. Over 85% of teenagers who saw the ad mentioned it was convincing and gave them enough reasons not to smoke. Evaluation of the impact of the campaign estimate that almost half a million young adults avoided initiating smoking.

Source: Farrelly et al. 2009; Healton 2001

Develop condition-specific registries to improve data quality and monitoring of NCDs. Disease registries are organized systems that collect standardized data to evaluate pre-defined outcomes for a particular disease or condition and can serve scientific, clinical or policy purposes. Disease registries not only increase the data quality and monitoring of specific conditions but also improve adherence to clinical guidelines. For example, in Sweden, the implementation of a disease registry for myocardial infarction was associated with a decrease in 3-day and 1-year mortality. Moreover, the disease registry also provided economic benefits as a total cumulative return of US$7 billion was estimated by reducing direct health care costs over a ten year period (Jernberg et al. 2011; Larsson, Lawyer, and Silverstein 2010).

Kosovo already has a cancer registry in place where doctors from regional hospitals are obliged by law to fill in an official form on the health information system on a weekly basis to then be transferred to the NIPH on a quarterly basis. Expanding the number of disease registries to include the main NCDs such as diabetes and hypertension, will enhance data quality and improve strategic planning to tackle NCDs.

Implement lists of patients at primary care facilities for better patient management. Effective follow-up and adherence to treatment are fundamental to reduce the progression of chronic conditions. Patients lists – assigning patients

to a specific health care facility or physician – allow patients to be seen by the same physician(s) and contribute to building a closer doctor-patient relationship. Patients should still have flexibility when choosing their preferred general practitioner, but evidence suggests that having a small number of clinicians to choose from increases patients' continuity of care (Freeman and Hughes 2010). Allowing patients to choose from a poll of physicians working at the same clinic will also contribute to better manage the workload among healthcare workers.

Develop tailored prevention and screening services driven by a national strategy for NCDs. The increasing cost of NCDs can be reduced by implementing prevention and screening strategies for early detection of chronic conditions, allowing Kosovars live longer and healthier. Although health promotion campaigns are being conducted in the country, the high reliance on donors and international organizations hazards the sustainability and limits their effectiveness. Preventive services must ensure that the right population is being targeted and that everyone has access to these services, particularly relevant for Kosovo as Roma, Ashkali, and Egyptian communities report worse health outcomes, a consequence of barriers to access health care. Ensuring sustainability, coordination, and equal access to everyone requires implementation of a national strategy to tackle NCDs (Box 7.2).

Box 7.2. NCD Targets from Estonia's National Health Plan (2009–2020)

The Estonian National Health Strategy was designed to ensure people in Estonia live longer, happier, and healthier lives. NCDs represent the main cause of poor health among people in Estonia, particularly due to cardiovascular diseases and cancer, driven by risk factors such as consumption of alcohol and tobacco, unhealthy diet, and lack of physical activity.

The National Health Strategy sets specific targets to reduce the burden of NCDs and that guide national and local actors' efforts. These targets include reducing premature (under 65) mortality rates from 94 in 2011 to 56 by 2020; reducing annual alcohol consumption from 10.2 in 2012 to less than 8 by 2020; reducing the prevalence of daily smokers among persons aged 16–64 from 26.2% in 2010 to 18.3% by 2020; and reducing the percentage of obese persons in the 16–64 age group from 15.2% in 2006 to 12% by 2020.

Source: Government of the Republic of Estonia 2009

Extend the pilot screening program on breast and cervical cancer throughout the country and expand this service to additional NCDs. The screening of breast and cervical cancer remains opportunistic despite the increase in the number of cases over the last decade. The lack of an organized screening program increases the risk of a late diagnosis with high mortality rates. Some municipalities have participated in pilot programs such as the mobile programs for breast and cervical cancer screening, but the pilots have not been extended nationwide and remain at localized levels. Moreover, there is a lack of knowledge and an extremely low percentage of women being vaccinated for HPV. Lessons on successful strategies to encourage women to get screened for cervical cancer and vaccinated for HPV should be drawn from the pilot program and incorporated at the municipality level throughout the country.

The success of the mobile programs should be leveraged to expand screening services for other NCDs. Since the implementation of mobile units, people from rural and remote areas have benefited from these services. This is particularly important to Kosovo as specialized equipment for screening – for example, mammograms – is usually located at the UCCK. Further preparing the health personnel from mobile units to expand their services to detect other NCDs and promote healthy lifestyles would increase the efficiency of the resources and increase acceptability by local communities.

Develop an integrated information system across healthcare institutions to improve coordination of care. Patients with chronic conditions require the input of multiple healthcare professionals as they navigate their way to control their disease. Therefore, an integrated information system connecting primary, secondary, tertiary, national public health institutes, and laboratory centers is fundamental to ensure that healthcare professionals have (or can access) a comprehensive evaluation of patient's disease without incurring further examinations. Although primary healthcare centers in Kosovo have access to an information system, it is used by less than 20 percent of all facilities. The existing information system should be leveraged and integrated to the secondary and tertiary levels of care. In addition to building the infrastructure across primary, secondary and tertiary healthcare facilities, the implementation of an integrated information system requires addressing cultural, administrative, and institutional barriers. While overcoming these is challenging, projects elsewhere have proved it is possible (Box 7.3).

Box 7.3. Transforming Tamil Nadu's Health System to a paperless system

A World Bank-funded project aimed at improving the effectiveness of the health system in Tamil Nadu, India, had capacity building for oversight and management of the health system as one of its primary goals. The goal included improving the quality of care, monitoring and evaluation, and building capacity for strategic infrastructure and administrative development related to NCDs.

Tamil Nadu's health system transitioned from paper-based health records to an information technology (IT)-based system. The project was rolled out in different phases and included a hospital management system fully functional in 264 secondary care hospitals and 50 tertiary hospitals; and a management information system integrated across 1,889 primary health centers, 264 secondary care hospitals, and 50 tertiary care hospitals.

The health management information system now plays a crucial role in standardized pathways of care and patient management, evidence-based procurement of drugs and equipment, and the rational deployment of resources.

Source: Govindaraj 2016

Develop standardized clinical protocols and build the infrastructure to provide evidence-based care. In the past few years, Kosovo has introduced clinical guidelines for some NCDs—cervical cancer, asthma, hypertension, diabetes, and ischemic brain disease. Efforts to develop clinical protocols should prioritize the NCDs contributing with the highest burden in Kosovo, particularly breast and colorectal cancer, and chronic respiratory diseases such as lung cancer and chronic obstructive pulmonary disease. Lessons learned from the development and implementation of guidelines for priority conditions should be then applied while expanding the list of clinical protocols.

Clinical audits of the implementation of the protocols should be embedded as a regular practice. Instituting empowerment and accountability mechanisms of quality care coordinators across health facilities is of high importance. National specialists can collaborate with regional and European peers under the coordination of the MoH to develop clinical guidelines incorporating best practice to ensure that physicians at public and private facilities will deliver the same care to patients.

Implementing the standardized protocols should involve providing healthcare workers with the required medical equipment and pharmaceuticals to facilitate evidence-based care. Hospitals continue to have shortages of medicines, even at the only tertiary hospital in the country. Moreover, primary care clinics face significant constraints to deliver care for NCDs, motivating patients to seek care at private institutions despite the high cost. As the country enhances the infrastructure at primary, secondary and tertiary healthcare facilities, it must also ensure that staff are adequately trained with the skills and knowledge to adhere to clinical guidelines (Box 7.4).

Box 7.4. Training primary health care workers to strengthen the prevention and control of NCDs in Mozambique

NCDs in Mozambique have increased over the last decade, with most of the cases being undiagnosed. The Government of Mozambique, in collaboration with Primary Care International (PCI), developed a training of trainers intervention to increase awareness and capacity of primary health care workers in the prevention and treatment of chronic conditions.

The intervention was divided in three phases. In Phase 1, an in-country multidisciplinary stakeholder team was created, comprising specialists, family physicians, a pharmacist, and public health workers. The team set priorities for the training, such as the four major conditions to be addressed and the development of clinical guidelines, which were lacking in the country. In Phase 2, clinical guidelines were developed and harmonized to the Mozambican context with input from Ministry of Health officials, Health Education professionals, health care workers—family physicians, specialists, nurses, preventive medicine health workers—and representatives from the WHO. In Phase 3, the team of local trainers was assembled. Two senior PCI trainers delivered the first workshop – 32 hours spread over four days – to 23 primary healthcare doctors, out of which 14 became local trainers. Subsequently, over 18 months, 60 health professionals were trained. Before and after evaluations showed improvements in the level of knowledge and confidence in clinical skills to prevent and treat NCDs.

Source: Harris et al. 2022

Enhance the monitoring and enforcement of policies to reduce tobacco and alcohol consumption, while increasing taxes of harmful products to international standards. Policies to tackle NCDs risk factors are in place, but these are not being enforced or fall short compared to the WHO best buys (WHO 2017). Enforcement of laws to reduce exposure and consumption of harmful products is often constrained when countries introduce these regulations. However, the implementation of an efficient monitoring and reporting system with adequate legal consequences for those violating the laws contributes to better adherence. Moreover, monitoring and reporting systems should be established as a national strategy, and officers should be trained to ensure compliance with regulations and avoid violating the law as seen in other countries (Jain et al. 2014).

The current excise tax on tobacco, spirits, and SSBs could be increased to change the population's behavior toward harmful products. The increases on cigarettes observed in recent years have had a limited impact on the consumers' choices and taxes on spirits and SSBs fail to be at the same level as international peers. Increasing excise taxes on these products will benefit not only the population by reducing the number of consumers, but also the Government of Kosovo as more tax revenue from these products will be collected.

Develop strategic planning for human resources for health to improve attraction and retention of healthcare workers. The effect of migration has resulted in the limited number of doctors and nurses in Kosovo, and remains a main concern after the COVID-19 pandemic, as around a quarter of healthcare workers have expressed their intentions to migrate for better working conditions, wages, and professional continuous development (Murataj et al 2022). The lack of appropriate human resources for health compromises not only the quality of services delivered to patients with chronic conditions, but also the efficiency of the health system due to dual practice being common in Kosovo. Strategic planning for human resources for health is therefore crucial to meet the population's health needs. The planning should consider the current and projected patient health needs while ensuring actions to attract and retain more healthcare workers are developed and implemented. Working together with medical and healthcare workers associations – the Association of Family Physicians of Kosovo, Kosovo Chamber of Nurses, Midwives and Other Health Professionals – will be crucial to successful strategic planning.

Build service capacity and increase access to mental health care. Almost a million Kosovars live with mental health disorders, a consequence of the recent conflicts. In addition, a major legacy of the COVID-19 pandemic will be mental health disorders with increasing numbers of people experiencing anxiety and depression. As the mental health burden increases, Kosovo should prepare by building a stronger health workforce that includes mental health nurses, psychologists and psychiatrists. Moreover, mental health services should be accessible particularly to the most vulnerable groups – Roma, Ashkali, and Egyptian population – that suffer more in this regard.

Building the capacity to meet the population's mental health needs should consider increasing community engagement to develop context-sensitive services. The great cultural diversity in Kosovo requires services that are aware of these and contextualize how healthcare is delivered. Mental health is usually surrounded by stigma and thus might represent an additional barrier to access mental health care. The development of community mental health centers has been a successful approach to increasing not only access to these services, but also their effectiveness in terms of patient health outcomes and hospital admissions (Box 7.5).

Box 7.5. Community mental health services in Turkey

Turkey has a long history of community mental health centers (CMHC), dating back to the 1970s when the first center was created. CMHC function as complementary psychiatric facilities and focus on the delivery of preventive mental health services. Individuals receive follow-up and treatment following the completion of an acute event treatment in the hospital. In addition to CMHC, selected primary care units have been organized to act as a point of contact for patients with mental health conditions. General practitioners and primary care nurses were trained to deliver care to patients with these conditions.

The effectiveness of CMHC has been shown to different conditions, including schizophrenia. Çoker et al (2021) reported that the share of patients with schizophrenia with three or more hospitalizations reduced from 46.8 percent before the patients' participation in a CMHC to less than 3 percent after.

Source: Gökalp and Aküzüm 2007; Çoker et al 2021

Accelerate the implementation of air quality plans to reduce exposure to harmful concentrations of air pollutants. Kosovo's air quality regulations have adhered to European standards, yet the implementation of these regulations has lagged due to lack of capacity and resources. Consequently, Kosovars continue to be exposed to harmful concentrations of air pollutants that increase the risk and severity of NCDs. Collaborations with international partners have resulted in improved monitoring of air pollutants. Therefore, these collaborations should be leveraged to accelerate the implementation of regulations to reduce the effect of harmful concentrations of air pollutants.

Advance health financing reforms to provide adequate resources and strategic purchasing for quality services. Kosovo's limited public health spending has resulted in poor availability of critical inputs into service delivery, including human resources, infrastructure, and medication. This has created major challenges in prevention and management of NCDs. Furthermore, without an effective strategic purchasing arrangement, the limited available resources are used inefficiently. Health financing reforms in Kosovo could start immediately with some pilots to introduce the concept of strategic purchasing and deliver concrete benefits to the population. One such pilot could be introduction of an outpatient drugs benefit package, which will significantly improve adherence to treatment for patients with chronic diseases.

REFERENCES

Accessible Quality Healthcare. 2021. "AQH Marks November 14th, World Diabetes Day." https://aqhproject.org/aqh-marks-november-14th-world-diabetes-day/.

All, Health for. 2011. "Improving Health of Roma, Ashkali and Egyptian Comunities in Fushë Kosovë." Prishtina, Kosovo: Health for All. https://kosovo.unfpa.org/en/publications/improving-health-roma-ashkali-and-egyptian-communities.

Anders, Carey K., Rebecca Johnson, Jennifer Litton, Marianne Phillips, and Archie Bleyer. 2009. "Breast Cancer before Age 40 Years." Seminars in Oncology 36 (3): 237–49. https://doi.org/10.1053/j.seminoncol.2009.03.001.

Arifi, H. M., S. B. Duci, V. K. Zatriqi, H. R. Ahmeti, V. H. Ismajli, M. M. Gashi, Y. M. Zejnullahu, and A. Y. Mekaj. 2013. "A Retrospective Study of 22 Patients with Necrotising Fasciitis Treated at the University Clinical Center of Kosovo (2005-2010)." International Wound Journal 10 (4): 461–65. https://doi.org/10.1111/j.1742-481X.2012.01005.x.

Assembly of Kosovo. 2001. "Law No. 02/L-36 Tobacco Law."

Balidemaj, Albina, and Festina Balidemaj. 2014. "Globalization and Health in Kosovo." European Journal of Social Science Education and Research 2(1): 193–98. https://www.researchgate.net/publication/318536569_Globalization_and_Health_in_Kosovo.

Begolli, I., and F–Arënliu – Qosaj. 2011. "Public Health System Reform." Kosovo: Forum 2015.

Bielecka-Dabrowa, A., W. S. Aronow, J. Rysz, and M. Banach. 2011. "The Rise and Fall of Hypertension: Lessons Learned from Eastern Europe." Current Cardiovascular Risk Reports 5 (2): 174–179. https://doi.org/10.1007/s12170-010-0152-2.

Bloom, David E., Elizabeth Cafiero, Eva Jané-Llopis, Shafika Abrahams-Gessel, Lakshmi Reddy Bloom, Sana Fathima, Andrea B Feigl, Tom Gaziano, Ali Hamandi, Mona Mowafi, Danny O'Farrell, Emre Ozaltin, Ankur Pandya, Klaus Prettner, Larry Rosenberg, Benjamin Seligman, Adam Z. Stein, and Cara Weinstein. 2012. "The Global Economic Burden of Noncommunicable Diseases." PPGDA Working Paper No. 87. https://cdn1.sph.harvard.edu/wp-content/uploads/sites/1288/2013/10/PGDA_WP_87.pdf.

Budreviciute, Aida, Samar Damiati, Dana Khdr Sabir, Kamil Onder, Peter Schuller-Goetzburg, Gediminas Plakys, Agne Katileviciute, Samir Khoja, and Rimantas Kodzius. 2020. "Management and Prevention Strategies for Non-Communicable Diseases (NCDs) and Their Risk Factors." Frontiers in Public Health 8: 574111. https://doi.org/10.3389/fpubh.2020.574111.

Çoker, Fatma, Arzu Yalçınkaya, Münevver Çelik, and Aysun Uzun. 2021. "The effect of community mental health center services on the frequency of hospital admission, severity of disease symptoms, functional recovery, and insight in patients with schizophrenia." Journal of Psychiatric Nursing 12(3) : 181-187. https://dx.doi.org/10.14744/phd.2021.18199.

Davies, Philip, Elvis Ahmedi, and Merita Berisha. 2015. "Assessment to Characterise the Current Situation & Capacities for the Prevention & Control of Breast, Cervical & Prostate Cancers in Kosovo." https://bit.ly/3Ts48ZO.

Debevec, Lučka, Andrej Debeljak, Janez Eržen, Viljem Kovač, and Izidor Kern. 2005. "Characterization of Lung Cancer Patients, Their Actual Treatment and

Survival: Experience in Slovenia." Radiology and Oncology 39 (2 SE-Clinical oncology). https://www.radioloncol.com/index.php/ro/article/view/1297.

European Commission. n.d. "Excise Duties on Tobacco." Accessed December 30, 2022a. https://taxation-customs.ec.europa.eu/taxation-1/excise-duties/excise-duties-tobacco_en#:~:text=In addition%2C the overall excise,weighted average retail selling price.

_____. n.d. "Health Warnings." Accessed September 27, 2022b. https://health.ec.europa.eu/tobacco/product-regulation/health-warnings_en.

_____. 2021a. "Excise Duty Tables." https://taxation-customs.ec.europa.eu/system/files/2021-09/excise_duties-part_i_alcohol_en.pdf.

_____. 2021b. "Healthcare Costs of CVD and Cancer in the European Countries." 2021. https://knowledge4policy.ec.europa.eu/health-promotion-knowledge-gateway/cost-non-communicable-diseases-healthcare-1_en.

_____. 2023. "Screening Ages and Frequencies." 2023. https://healthcare-quality.jrc.ec.europa.eu/ecibc/european-breast-cancer-guidelines/screening-ages-and-frequencies.

Eurostat. 2022. "Cardiovascular Diseases Statistics." 2022. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Cardiovascular_diseases_statistics#Deaths_from_cardiovascular_diseases.

Falcaro, Milena, Alejandra Castanon, Busani Ndlela, Marta Checchi, Kate Soldan, Jamie Lopez-Bernal, Lucy Elliss-Brookes, and Peter Sasieni. 2021. "The Effects of the National HPV Vaccination Programme in England, UK, on Cervical Cancer and Grade 3 Cervical Intraepithelial Neoplasia Incidence: A Register-Based Observational Study." The Lancet 398 (November). https://doi.org/10.1016/S0140-6736(21)02178-4.

Farnsworth, N. 2008. "Exploratory Research on the Extent of Gender-Based Violence in Kosova and Its Impact on Women's Reproductive Health." Kosovo: UNFPA and Kosova Women's Network. https://womensnetwork.org/wp-content/uploads/2018/10/20130120165614663.pdf.

Farnsworth, N., K. Goebbels, and R. Ajeti. 2016. "Access to Healthcare in Kosovo." Kosovo: The Kosova Women's Network. https://womensnetwork.org/wp-content/uploads/2018/10/20170206150329798.pdf.

Farrelly, Matthew C., James Nonnemaker, Kevin C. Davis, and Altijani Hussin. 2009. "The Influence of the National Truth Campaign on Smoking Initiation." American Journal of Preventive Medicine 36 (5): 379–84. DOI: 10.1016/j.amepre.2009.01.019.

Ferizi, Lulëjeta, Fatmir Dragidella, Gloria Staka, Venera Bimbashi, and Shefqet Mrasori. 2017. "Oral Health Status Related to Social Behaviors–among 6 – 11 Year Old Schoolchildren in Kosovo." Acta Stomatologica Croatica 51 (2): 122–32. https://doi.org/10.15644/asc51/2/5.

François-Xavier Bagnoud Center for Health and Human Rights, and Harvard School of Public Health and Harvard University. 2014. "Post-War Kosovo and Its Policies towards the Roma, Ashkali, and Egyptian Communities." Boston, USA: François-Xavier Bagnoud Center for Health and Human Rights, Harvard School of Public Health and Harvard University. https://cdn1.sph.harvard.edu/wp-content/uploads/sites/2464/2020/01/FXB-Kosovo-Report-July-2014.pdf.

Freeman, George, and Jane Hughes. 2010. "Continuity of Care and the Patient Experience." London: The King's Fund. https://bit.ly/3LBNC7N.

Fulop, Naomi, and Glenn Robert. 2015. Context for Successful Quality Improvement Evidence Review. http://www.health.org.uk/sites/health/files/ContextForSuccessfulQualityImprovement.pdf.

Gedvilaitė, Vaida, Edvardas Danila, Saulius Cicėnas, and Giedrė Smailytė. 2019. "Lung Cancer Survival in Lithuania: Changes by Histology, Age, and Sex From 2003-2007 to 2008-2012." Cancer Control : Journal of the Moffitt Cancer Center 26 (1): 1073274819836085. https://doi.org/10.1177/1073274819836085.

Gökalp, R. Peykan, and Z. Nergis Aküzüm. 2007. "Community mental health services in Turkey: past and future." International Journal of Mental Health 36(3): 7–14. https://doi.org/10.2753/IMH0020-7411360302.

Government of the Republic of Estonia. 2009. "National Health Plan (2009–2020)."

Govindaraj, R. 2016. "How the Tamil Nadu Health System was transformed to a paperless health system in just 10 years". Available at: https://blogs.worldbank.org/health/how-tamil-nadu-health-system-was-transformed-paperless-health-system-just-10-years (Accessed 14 February 2023)

Harris, Philippa, Edna Juga, Neusa Bay, Chamila Adams, Patrícia Nhatitima, Adjine Mastala, Nilza Matavel, Arminda Mufanequisso, Nelta Mabote, Eunice Mondlane, Naisa Manafe, Paula Pinto, Ros Kirkland, David Mazza, and Ana Mocumbi. 2022. "Empowering Frontline Primary Healthcare Workers in a Global Health Partnership Training of Trainers Intervention to Strengthen the Prevention and Control of Cardiovascular Disease in Mozambique." Global Heart 17 (1): 51. https://doi.org/10.5334/gh.1052.

HEAL. 2016. "The Unpaid Health Bill - Kosovo." https://www.env-health.org/wp-content/uploads/2018/08/unpaid_health_bill_factsheet_kosovo_en.pdf.

Healton, Cheryl. 2001. "Who's Afraid of the Truth?" American Journal of Public Health 91 (4): 554–558. https://bit.ly/3TrX3IW.

Hoppen, Thole H, Stefan Priebe, Inja Vetter, and Nexhmedin Morina. 2021. "Global Burden of Post-Traumatic Stress Disorder and Major Depression in Countries Affected by War between 1989 and 2019: A Systematic Review and Meta-Analysis." BMJ Global Health 6 (7). https://doi.org/10.1136/bmjgh-2021-006303.

Hoxha, I. 2013. The Performance of Public Health Care System in South-Eastern Europe Report: Kosovo. Belgrade, Serbia: Friedrich-Ebert-Stiftung. https://library.fes.de/pdf-files/bueros/belgrad/10758.pdf.

Hoxha, I., E. Muhaxheri, V. Berisha, and Solidar Suisse. 2012. "A Proposal for a Health Insurance Plan: How Does It Affect Us?" Prishtina, Kosovo: Solidar Suisse. https://bit.ly/3lhtP2Z.

Institute for Health Metrics and Evaluation. 2020. "Global Burden of Disease Study 2019 Results." 2020. http://ghdx.healthdata.org/gbd-results-tool.

Jain, Dipika, Amit Jadav, Kimberly Rhoten, and Abhinav Bassi. 2014. "The Enforcement of India's Tobacco Control Legislation in the State of Haryana: A Case Study." World Medical & Health Policy 6 (4): 331–46. https://doi.org/10.1002/wmh3.116.

Jakab, Zsuzsanna. 2018. "Health Systems Respond to Non-Communicable Diseases: Time for Ambition." European Journal of Public Health. Vol. 28. 584. https://doi.org/10.1093/eurpub/cky069.

Jernberg, Tomas, Per Johanson, Claes Held, Bodil Svennblad, Johan Lindbäck, and Lars Wallentin. 2011. "Association between Adoption of Evidence-Based Treatment and Survival for Patients with ST-Elevation Myocardial Infarction." JAMA 305 (16): 1677–84. https://jamanetwork.com/journals/jama/fullarticle/899417.

Jo, Changik. 2014. "Cost-of-Illness Studies: Concepts, Scopes, and Methods." Clinical and Molecular Hepatology 20 (4): 327–37. https://doi.org/10.3350/cmh.2014.20.4.327.

Kilian, Carolin, Pol Rovira, Maria Neufeld, Carina Ferreira-Borges, Harriet Rumgay, Isabelle Soerjomataram, and Jürgen Rehm. 2021. "Modelling the Impact of Increased Alcohol Taxation on Alcohol-Attributable Cancers in the WHO European Region." The Lancet Regional Health. Europe 11 (December): 100225. https://doi.org/10.1016/j.lanepe.2021.100225.

Knowles, S., and M. Parker. 2008. "Female Genital Cancer in Kosovo; a Situational Analysis of Breast and Cervical Cancer." UNFPA. https://womensnetwork.org/wp-content/uploads/2018/10/20130510131043236.pdf

Kontsevaya, Anna, Jill Farrington, Mehmet Balcılar, and Toker Ergüder. 2018. Prevention and control of noncommunicable diseases in Turkey: the case for investment. Copenhagen: World Health Organization Regional Office for Europe, 2018. https://apps.who.int/iris/handle/10665/345584.

KOSANA. n.d. "Availability of Basic Services and Medication." https://solidar-suisse-kos.org/wp-content/uploads/2020/01/Availability-of-basic-services-and-medication.pdf.

Larsson, S., P. Lawyer, and M. B. Silverstein. 2010. "From Concept to Reality: Putting Value-Based Health Care into Practice in Sweden." The Boston Consulting Group. https://www.bcg.com/publications/2011/biopharma-health-care-payers-providers-health-care-from-concept-to-reality.

Lundborg, Petter, Martin Nordin, and Dan Olof Rooth. 2018. "The Intergenerational Transmission of Human Capital: The Role of Skills and Health." Journal of Population Economics 31(4): 1035–65. https://doi.org/10.1007/s00148-018-0702-3.

Luta, X., and T. Draebel. 2013. "Kosovo-Serbs' Experiences of Seeking Healthcare in a Post-Conflict and Ethnically Segregated Health System." International Journal of Public Health 58 (3): 377–83. https://doi.org/10.1007/s00038-012-0403-8.

Marmot, Michael, and Ruth Bell. 2019. "Social Determinants and Non-Communicable Diseases: Time for Integrated Action." BMJ 364 (January): l251. https://doi.org/10.1136/bmj.l251.

Mendis, Shanthi. 2010. "The Policy Agenda for Prevention and Control of Non-Communicable Diseases." British Medical Bulletin 96 (1): 23–43. https://doi.org/10.1093/bmb/ldq037.

Moore, J E, S Uka, J P Vogel, C Timmings, S Rashid, A M Gulmezoglu, and S E Straus. 2016. "Navigating Barriers: Two-Year Follow up on Recommendations to Improve the Use of Maternal Health Guidelines in Kosovo." BMC Public Health 16: 987. https://doi.org/10.1186/s12889-016-3641-5.

Morina, Nexhmedin, and Paul M G Emmelkamp. 2012. "Mental Health Outcomes of Widowed and Married Mothers after War." The British Journal of Psychiatry: The Journal of Mental Science 200 (2): 158–59. https://doi.org/10.1192/bjp.bp.111.093609.

Murataj, Nora, Blerim Syla, Yllka Krasniqi, Shegë Bahtiri, Dardan Bekaj, Petrit Beqiri, and Ilir S. Hoxha. 2022. "Migration Intent of Health Care Workers during the COVID-19 Pandemic in Kosovo." International Journal of Environmental Research and Public Health 19, no. 17: 11122. DOI: 10.3390/ijerph191711122.

NCCID. 2016. "More than Just Numbers: Exploring the Concept of 'Burden of Disease.'" 2016. https://nccid.ca/publications/exploring-the-concept-of-burden-of-disease/.

NCD Alliance. n.d. "The financial burden of NCDs." https://ncdalliance.org/why-ncds/the-financial-burden-of-ncds. Accessed 11 Dec 2020.

_____. n.d. "Noncommunicable Diseases (NCDs)." Accessed September 27, 2022d. https://ncdalliance.org/why-ncds/NCDs.

Netherlands Court of Audit, and Supreme Audit Office of Poland. 2019. "Joint Report Air Quality." https://english.rekenkamer.nl/publications/reports/2019/01/30/joint-report-air-quality.

Nikoloski, Zlatko, William Msemburi, Ada Alqunaibet, Faisal Kattan, Christopher H Herbst, David Watkins, Eric Finkelstein, Jesse D Malkin, and Sameh El-Saharty. 2021. "Estimated and Likely Impact of NCDs on Human Capital in Saudi Arabia." In Ada Alqunaibet, Christopher H. Herbst, Sameh El-Saharty, and Abdullah Algwizani (eds.) Noncommunicable Diseases in Saudi Arabia: Toward Effective Interventions for Prevention. Washington, DC: World Bank. https://doi.org/10.1596/978-1-4648-1717-5.

O'Hanlon, K P, and B Budosan. 2011. "Post-Disaster Recovery: A Case Study of Human Resource Deployment in the Health Sector in Post-Conflict Kosovo." Prehospital and Disaster Medicine 26(1): 7–14. DOI:10.1017/s1049023x10000051

Obas, K. A., Jana Gerold, Ariana Bytyçi-Katanolli, Naim Jerliu, Marek Kwiatkowski, Qamile Ramadani, Shukrije Statovci, Manfred Zahorka, and Nicole Probst-Hensch . 2021. "Study Protocol: A Prospective Cohort on Non-Communicable Diseases among Primary Healthcare Users Living in Kosovo" (KOSCO)." BMJ OPEN 11 (1): 1. https://doi.org/10.1136/bmjopen-2020-038889.

Obas, K. A., Ariana Bytyci-Katanolli, Marek Kwiatkowski, Qamile Ramadani, Nicu Fota, Naim Jerliu, Shukrije Statovci, Jana Gerold, Manfred Zahorka, and Nicole Probst-Hensch. 2022. "Strengthening Primary Healthcare in Kosovo Requires Tailoring Primary, Secondary and Tertiary Prevention Interventions and Consideration of Mental Health." Frontiers in Public Health 10: 794309. https://doi.org/10.3389/fpubh.2022.794309.

Palushi, Lirije, Besnik Prekazi, Jeta Statovci, Nitë Bylykbashi Deliu, and Arben Hajrullahu. 2018. "National Study-KOSOVO." http://tobaccotaxation.org/cms_upload/pages/files/National-study-kosovo.pdf

Percival, Valerie, and Egbert Sondorp. 2010. "A case study of health sector reform in Kosovo." Conflict and health . https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2864221/

Pond, Fred C., Ellen Thompson, A. Laurie Harding, Mary Taylor, and Cristina Hammond. 2016. "A Partnership to Improve Health Care in Kosovo: Dartmouth Medical School and Kosovar Nurses Worked Together on a Two-Year Project to Rebuild Primary Health Care in the Postconflict City of Gjilan." AJN, American Journal of Nursing 106.11: 72CC–72GG. Web

Prekazi, Besnik, and Erëza Pula. 2020. "Adult Tobacco Use in Kosovo." Pristina, Kosovo: Democracy Plus. https://tobacconomics.org/files/research/648/210-ksv-report.pdf.

Price, Elissa. 2015. "Women Aged 40 to 49: Breast Cancer Screening Recommendations." 2015. https://radiology.ucsf.edu/blog/women-aged-40-49-breast-cancer-screening-recommendations.

Raçi, Pranvera Zejnullahu, Fitim Raçi, and Teuta Hadri. 2021. "Kosovo Women's Knowledge and Awareness of Human Papillomavirus (HPV)

Infection, HPV Vaccination, and Its Relation to Cervical Cancer." BMC Women's Health 21 (1): 354. https://doi.org/10.1186/s12905-021-01496-x.

Raunio, E., R. Engel, A. Fejza, M. Telaku, I. Hoxha, and Solidar Suisse. 2015. "Policy Brief 10 - Kosovo Roma, Ashkali and Egyptian Access to and Use of Health Care Services." Prishtina, Kosovo: Solidar Suisse.

Republic of Kosovo. n.d. "Law No. 04/L-156 on Tobacco Control."

Rysha, Agim, Tahire M. Gjergji, and Angelika Ploeger. 2017. "Nutritional status of preschool children attending kindergartens in Kosovo." Journal of Health, Population and Nutrition 36(1): 1-8. https://doi.org/10.1186/s41043-017-0105-1.

Sajber, Dorica, Enver Tahiraj, Natasa Zenic, Mia Peric, and Damir Sekulic. 2016. "Alcohol Drinking Among Kosovar Adolescents: An Examination of Gender-Specific Sociodemographic, Sport, and Familial Factors Associated With Harmful Drinking." Substance Use & Misuse 51(4): 533-539 . https://doi.org/10.3109/10826084.2015.1122064.

Seiwerth, Fran, Lela Bitar, K Krpina, Ivona Markelić, G. Glodić, Fedja Dzubur, Silvana Smojver-Jezek, Ana Mataić, M Samaržija, and Marko Jakopovic. 2021. "P40.13 Lung Cancer 5-Year Survival in Croatia - Our Experience." Journal of Thoracic Oncology 16: S1075. https://doi.org/10.1016/j.jtho.2021.08.450.

Selimi, A, and BIRN. 2012. "Public Health Monitoring Report 2011." Prishtina, Kosovo: BIRN. https://www.drejtesianekosove.com/repository/docs/2011-Monitoring-Public-Healthcare-Report_839574.pdf.

Stanculescu, Manuela S., G. Neculau, P. Atanasov, V. Benkovic, M. Bjelovic, J. Goldstein, I. Hoxha, A. Ljaljevic, L. Mitevska, and A. Mecineanu. 2014. The Performance of Public Health-Care Systems in South-East Europe: A comparative qualitative study. Belgrade, Serbia: Friedrich Ebert Stiftung. https://library.fes.de/pdf-files/bueros/belgrad/10758.pdf.

Straus, S. E, J. E. Moore, S. Uka, C. Marquez, and A. M. Gulmezoglu. 2013. "Determinants of Implementation of Maternal Health Guidelines in Kosovo: Mixed Methods Study." Implement Science 8, Article number 108. https://doi.org/10.1186/1748-5908-8-108.

Sulejmani, Erhan, Arjeta Hyseni, Gafur Xhabiri, and Celia Rodríguez-Pérez. 2021. "Relationship in Dietary Habits Variations during COVID-19 Lockdown in Kosovo: The COVIDiet Study." Appetite 164: 105244. https://doi.org/10.1016/j.appet.2021.105244.

Swiss Development Corporation. 2014. Final Consultancy Report on Design of the Affordable Quality Healthcare Project of Kosovo. Prishtina, Kosovo: Swiss Development Corporation. https://www.aramis.admin.ch/Default?DocumentID=49090&Load=true

Tahiraj, Enver, Mladen Cubela, Ljerka Ostojic, Jelena Rodek, Natasa Zenic, Damir Sekulic, and Blaž Lešnik. 2016. "Prevalence and Factors Associated with Substance Use and Misuse among Kosovar Adolescents; Cross Sectional Study of Scholastic, Familial-, and Sports-Related Factors of Influence." International Journal of Environmental Research and Public Health 13: 502–9. https://doi.org/10.3390/ijerph13050502.

Tishukaj, Faton, Ismet Shalaj, Masar Gjaka, Besim Ademi, Rrustem Ahmetxhekaj, Norbert Bachl, Harald Tschan, and Barbara Wessner. 2017. "Physical Fitness and Anthropometric Characteristics among Adolescents Living in Urban or Rural Areas of Kosovo." BMC Public Health 17(1): 711. https://doi.org/10.1186/s12889-017-4727-4.

Tobaccotaxation. 2018. "Accelerating Progress on Effective Tobacco Tax Policies in Kosovo." https://tobacconomics.org/files/research/580/Policy-Brief-KS.pdf.

Tobaccotaxation. 2019. Survey on Tobacco Consumption in SEE Countries - STC-SEE 2019. Accessed January 12, 2023. http://tobaccotaxation.org/research.php?pID=221.

Turjaka, Arbëresha, Merita Berisha, Lumturije Luci, and Shefqet Lulaj. 2010. "Breast Cancer Screening in Kosovo: Women's Knowledge and Behaviours." Zdravstveno Varstvo 49 (4): 153.

Uka, A, and Health Policy Institute. 2014. "Understanding Informal Patient Payments in Kosovo's Health Care System." Bratislava, Slovakia: Health Policy Institute. https://www.hpi.sk/cdata/Publications/HPI_UKA_Understanding_informal_patient_payments_in_Kosovo.pdf.

UNICEF Kosovo. 2019. "Impact of Air Pollution on Health and Measures to Reduce Exposures in Kosovo." Pristina, Kosovo: UNICEF Kosovo. https://www.unicef.org/kosovoprogramme/media/1091/file/UNICEF%20Report_Air%20Pollution.pdf%20.pdf.

UNICEF, and Kosovo Agency of Statistics. 2020. "MICS 2020 Key Findings in Snapshots: Kosovo Multiple Indicator Survey." 2020. https://www.unicef.org/kosovoprogramme/reports/mics-2020-key-findings-snapshots.

United Nations Population Fund. 2012. "Partnership to Improve Women's and Children's Health in Kosovo." Kosovo: UNFPA.

USAID. 2008. "Kosovo - Dartmouth Aliance for Healthy Newborns." Prishtina, Kosovo: USAID.

Vandenberghe, Désirée, and Johan Albrecht. 2020. "The Financial Burden of Non-Communicable Diseases in the European Union: A Systematic Review." European Journal of Public Health 30(4): 833–39. https://doi.org/10.1093/eurpub/ckz073.

Warren, Graham W., Anthony J. Alberg, Andrew S. Kraft, and K. Michael Cummings. 2014. "The 2014 Surgeon General's Report: 'The Health Consequences of Smoking – 50 Years of Progress': A Paradigm Shift in Cancer Care." Cancer 120(13); 1914–1916. https://doi.org/10.1002/cncr.28695.

World Bank. 2017. "Western Balkans Regional AQM - Western Balkans Report – AQM in Kosovo." https://openknowledge.worldbank.org/server/api/core/bitstreams/85d8a80e-51a3-5bc0-b7fd-6063c90a865c/content.

_____. 2022. "The Human Capital Project: Frequently Asked Questions." 2022. https://www.worldbank.org/en/publication/human-capital/brief/the-human-capital-project-frequently-asked-questions?cid=GGH_e_hcpexternal_en_ext#HCP2.

World Development Indications, World Bank. Accessed December 20, 2022. https://databank.worldbank.org/source/world-development-indicators.

World Health Organization. Regional Office for Europe. n.d. "Promoting Taxation on Tobacco Products." Accessed December 30, 2022. https://www.who.int/europe/activities/promoting-taxation-on-tobacco-products.

_____. 2016. Action Plan for the Prevention and Control of Noncommunicable Diseases in the WHO European Region. Copenhagen: World Health Organization. Regional Office for Europe. https://apps.who.int/iris/handle/10665/341522 .

World Health Organization Regional Office for Europe, and United Nations Development Programme. 2019. Non-Communicable Disease Prevention and Control: A Guidance Note for Investment Cases. Geneva: World Health Organization. https://apps.who.int/iris/handle/10665/311180.

World Health Organization. n.d. "Fact Sheet on Tobacco Taxation." Accessed September 27, 2022a. https://www.euro.who.int/__data/assets/pdf_file/0007/250738/140379_Fact-sheet-Tobacco-Taxation-Eng-ver2.pdf.

_____. n.d. "Key Findings on Second-Hand Smoke." Accessed April 21, 2022b. https://www.euro.who.int/en/health-topics/disease-prevention/tobacco/news/news/2011/01/4-countries-release-data-on-exposure-to-second-hand-smoke/key-findings-on-second-hand-smoke.

_____. n.d. "Mammographs per 100,000." European Health Information Gateway. Accessed September 28, 2022c. https://gateway.euro.who.int/en/indicators/hlthres_103-mammographs-per-100-000/visualizations/#id=28043&tab=table.

_____. 2017. "Tackling NCDs: 'best buys' and Other Recommended Interventions for the Prevention and Control of Noncommunicable Diseases." World Health Organization. https://apps.who.int/iris/handle/10665/259232.

_____. 2021. "More than 700 Million People with Untreated Hypertension." 2021. https://www.who.int/news/item/25-08-2021-more-than-700-million-people-with-untreated-hypertension.

_____. 2022. "Sugar-Sweetened Beverage Taxes in the WHO European Region: Success through Lessons Learned and Challenges Faced." WHO Regional Office for Europe. https://apps.who.int/iris/handle/10665/351781.

World Partnerships. 2021. "Kosovo: Breast Cancer Awareness." 2021. https://www.worldpartnerships.org/kosovo-breast-cancer-awareness.html.

Yassin, Abdiaziz S, Gloria L Beckles, and Mark L Messonnier. 2002. "Disability and Its Economic Impact among Adults with Diabetes." Journal of Occupational and Environmental Medicine 44 (2): 136–42. https://doi.org/10.1097/00043764-200202000-00008.

Zimmermann, Mari-Liis, Margit Mägi, Pille Härmaorg, and Kaire Innos. 2021. "Cancer in Estonia 2018." Tallin, Estonia: National Institute for Health Development. https://www.tai.ee/sites/default/files/2021-10/Cancer_in_Estonia_2018.pdf.

ANNEX A

Estimating the economic costs of NCDs – methodology

A COI approach was employed to determine the economic burden of NCDs for the period 2023 - 2030. This approach assesses the direct and indirect costs related to each disease. Direct costs are the costs to the government or out-of-pocket payments for diagnosis and treatment. Indirect costs reflect the costs of lost productivity due to disease—premature mortality, absenteeism, and presentism (Jo 2014). Direct and indirect costs were calculated independently, and then added up to determine the total cost of NCDs to the economy. The COI is also reported as a share of gross domestic product (GDP). The definitions and sources used to perform the COI analysis are illustrated in table A1.

Table A1. Summary of data sources for input to the cost-of-illness analysis

Variable	Measurement	Sources (Kosovo)
Total population in need	Total number of people with a given NCD condition in a given year.	KAS, NIPH, peer review literature.
Coverage target	The percentage of population that is provided with a given service in each year per NCD disease or condition.	A 100% coverage assumed.
Cases treated	Actual numbers based on population in need and coverage targets. The costing is based on standard treatment requirements.	KAS, NIPH, peer review literature.
Salaries and allowances	Total average annual salary and allowances per cadre in the public health sector.	KAS
Prices of drugs, reagents, and supplies	Prices in Euros for these inputs.	National Agency for Pharmaceutical Products, Expert opinion.
Patient transport cost	Average transport cost in Euros incurred by patients when seeking NCD service.	Expert opinion.
Overhead cost	Cost of utilities, administration, and other staff (excluding doctors, nurses, pharmaceutical technologists, laboratory technologist and technicians, radiographers/ X-ray technicians).	Expert opinion based on one hospital's costs.
Contact time	Time it takes, in minutes, a doctor or a nurse or any other staff involved in screening, diagnoses and treatment to serve one patient during an outpatient visit or an inpatient day.	Expert opinion.
GDP at market prices	Annual value in Euros.	The World Bank, KAS.
Labor force participation rate	Rates were maintained constant from 2023 to 2030.	Literature, KAS.
Mortality	Number of deaths per disease or condition for each year.	Literature.

Variable	Measurement	Sources (Kosovo)
Absenteeism	Measured as fraction of working time lost as a result of being sick and the resulting disability associated with the disease/ condition.	Literature.
Output per worker	Average gross domestic product per worker	Ministry of Finance, KAS.

Sources: Kosovo Agency of Statistics (KAS); National Institute of Public Health (NIPH).

Calculation of the direct costs of NCDs was done by considering the cost to provide screening, diagnosis, and treatment of ill health caused by six NCDs (hypertension, diabetes mellitus, breast cancer, cervical cancer, lung cancer, and colorectal cancer). The clinical interventions included in the COI and formulas to estimate the costs are described in Box A1 The items considered for each clinical intervention included (a) medicines and supplies costs; (b) health professionals costs; (c) overhead costs of outpatient visits and inpatient stays – utility costs, administrative and other non-health staff; (d) other lump sum costs; and (e) transport costs for patients.

Box A1. Clinical interventions and formulas to calculate the direct costs of the included NCDs

The clinical interventions costed were:

- Hypertension: manual measurement of blood pressure, control of high blood pressure. treatment of neurological, ophthalmologic, and myocardial complications.
- Diabetes: Screening for risk of diabetes, standard glycemic control (oral and insulin), treatment of neurological, ophthalmologic, and myocardial complications.
- Breast cancer: Breast cancer screening and diagnosis via clinical breast examination and mammography, cancer treatment for stages I–IV.
- Cervical cancer: Visual inspection, pap smear, biopsy, and histopathology, cervical cancer treatment for stages I–IV.
- Lung cancer: Visual inspection, X-ray, biopsy, and histopathology..
- Colorectal cancer: Visual inspection, x-ray, biopsy, and histopathology, colorectal cancer treatment for stages I–IV.

Direct costs for both scenarios were calculated as follows:

- *Per person cost was calculated as the cost of all items (medicines and supplies, health workforce, overhead, other costs and patient transportation costs) for screening, diagnosis and treatment.*
- *Total direct costs per year = number of persons treated for a given disease per that year x per-person cost.*

Indirect costs of NCDs include the monetary value of lost productivity that comes from people getting sick from the NCDs, leading to an early exit from the labor market. Individuals can also miss work due to ill health (absenteeism), or they are less productive while at work due to ill health (presentism). This analysis excludes cost due to presentism because of the lack of reliable data. The indirect costs were estimated using the current labor force participation rate for Scenario 1 and assumed a labor force participation of 100 percent for Scenario 2 for people of working age. Based on review of literature, the details of the activities considered for each disease and the formulas to estimate the direct costs are presented below in Box A2.

Box A2. Clinical interventions and formulas to calculate the direct costs of the included NCDs

Indirect costs' assumptions for both scenarios were:

- Hypertension: On average, each death caused by hypertension is assumed to result in the loss of 5 years of working life; hypertension causes individuals to lose 2.8 percent of working days due to absenteeism.
- Diabetes: On average, each death caused by diabetes is assumed to result in the loss of 6 years of working life. Diabetes causes individuals to lose 5.7 percent of working days due to absenteeism.
- Breast cancer: On average, each death caused by breast cancer is assumed to result in the loss of 17 years of working life. Breast cancer causes individuals to lose 12.5 percent of working days due to absenteeism.
- Cervical cancer: On average, each death caused by cervical cancer is assumed to result in the loss of 23 years of working life. Cervical cancer causes individuals to lose 12.5 percent of working days due to absenteeism.
- Lung cancer: On average, each death caused by lung cancer is assumed to result in the loss of 14.5 years of working life. Lung cancer causes individuals to lose 12.5 percent of working days due to absenteeism.
- Colorectal cancer: On average, each death caused by lung cancer is assumed to result in the loss of 13 years of working life. Colorectal cancer causes individuals to lose 12.5 percent of working days due to absenteeism.

Indirect costs were calculated as follows:

- Productivity loss from premature mortality:
  - » Number of deaths for particular NCD * GDP per worker per year * % of population aged 16-65 who participate in the labor force[6] * expected number of years of working life lost.[7]
- Productivity loss from absenteeism:
  - » Productive (%) time lost per year * disease prevalence in a given year * GDP per worker in a given year * % of population aged 16-65 who participate in the labor force.[8]

6 Such percentage equals to the current labor force participation rate in Scenario 1 and equals to 100% in Scenario 2.
7 Expected number of years of working life lost are calculated with subtraction of the average age of death from diseases from cutoff age of working life, 65.
8 Such percentage equals to the current labor force participation rate in Scenario 1 and equals to 100% in Scenario 2.

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