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# Better noncommunicable disease outcomes: challenges and opportunities for health systems

# Country assessment REPUBLIC OF MOLDOVA

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## **Republic of Moldova Country Assessment**

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# Abstract

Like many countries, the Republic of Moldova faces a growing NCD burden. This report examines the challenges and opportunities faced in the Republic of Moldova in order to accelerate improvement in NCD outcomes. In recent years, the Government of the Republic of Moldova has implemented a number of important reforms that have increased efficiency and equity in resource allocation, and have provided incentives to improve service delivery, including for NCDs. Challenges include further scale up and implementation of new initiatives in the area of NCD risk factor management. Major gains can be made through relatively low-cost public health and primary health care interventions. These include, among others, strengthening tobacco, alcohol, and dietary policies and their implementation, improving detection and treatment of risk factors for cardiovascular disease, including hypertension and hyperlipidaemia, strengthening clinical protocols, and improving rational prescribing practice. This report examines in depth the health system challenges and opportunities for improved prevention and control of NCDs and concludes with policy recommendations for the consideration of policy makers in the Republic of Moldova.

## Keywords

CHRONIC DISEASE  
HEALTHCARE SYSTEMS  
UNIVERSAL COVERAGE  
HEALTH PROMOTION  
PRIMARY HEALTHCARE  
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This report was greatly informed by a two day policy workshop held on the 19th-20th of February 2014 in Chisinau, Republic of Moldova with participation of senior Ministry of Health officials, representatives from non governmental organizations and development partners. The authors are very grateful to all who participated for their valuable insights and suggestions.

This assessment was produced under the overall guidance of Dr. Andrei Usatii, Minister of Health of the Republic of Moldova, Dr. Hans Kluge, Director of the Division of Health Systems and Public Health and Dr. Gauden Galea, Director of the Division of Noncommunicable Disease and Life course in the WHO Regional Office for Europe and Dr. Jarno Habicht WHO representative in Republic of Moldova.

This report was produced through the Biennial Collaborative Agreements (BCAs), covering 2012–2015, between the Ministry of Health of the Republic of Moldova and the World Health Organization. This paper also forms part of the Republic of Moldova Health Policy Paper Series launched in 2011 with the aim of strengthening the health system in the Republic of Moldova in line with the national health policy and strategy for the development of the health system.

This document has been produced with the financial assistance of the EU within the technical assistance programme coordinated by the WHO. The objectives of the programme include strengthening the stewardship of health sector investments, better monitoring of performance, addressing noncommunicable diseases and ensuring greater use of evidence in policy decisions. The dialogue on the results is linked to the European Union/WHO joint initiative to support policy dialogue and universal health coverage.

The authors' views expressed in this report do not necessarily reflect the views of the World Health Organization, European Union and the Ministry of Health of the Republic of Moldova.



# Acronyms and abbreviations used in this document

ACE	Angiotensin-converting enzyme
ACS	Acute coronary syndrome
AIDS	Acquired immunodeficiency syndrome
AMI	Acute myocardial infarction
ATC	Anatomical therapeutic chemical
BAC	Blood alcohol content
BBP	Basic benefit package
CIS	Commonwealth of Independent States
CNAM	National health insurance company
COPD	Chronic obstructive pulmonary disease
CVD	Cardiovascular disease
DHS	Demographic and Health Survey
DRG	Diagnosis-related group
ECG	Electrocardiograph
EBM	Evidence-based medicine
EML	Essential medicines list
EMS	Emergency medical service
EU	European Union
FCTC	Framework Convention on Tobacco Control
GMP	Good Manufacturing Practice
GPS	Global positioning system
HbA1C	Glycated haemoglobin
HBS	Household budget survey
HAI	Health Action International
HIV	Human immunodeficiency virus
IEC	Information, education and communication
KAP	Knowledge, attitudes and practice
NBS	National Bureau of Statistics
NCD	Noncommunicable disease
NCPH	National Centre of Public Health
NGO	Nongovernmental organization
NRT	Nicotine replacement therapy
OOP	Out-of-pocket
SCORE	Systematic Coronary Risk Evaluation
SDR	Standardized death rate
TMA	Territorial medical association

# Introduction and rationale

This country assessment is part of a project of the WHO Regional Office for Europe to increase support to Member States in strengthening their health system to improve noncommunicable diseases (NCDs) outcomes. Five countries participated in a first round of assessments: Hungary, Kyrgyzstan, the Republic of Moldova, Tajikistan and Turkey. The five country assessments were carried out by multidisciplinary teams using a common approach. The assessments were based on a structured assessment guide, tailored to the specific needs of each country. The guide itself was based on a background paper exploring the role of health systems in tackling NCDs<sup>a</sup>.

The country assessment had two objectives. First, they aimed to produce pragmatic, contextualized and actionable policy recommendations for health system strengthening, to allow accelerating gains in key NCD outcomes for Republic of Moldova. The assessments and the accompanying policy recommendations are intended to provide a platform for a comprehensive NCD action plan to serve as an umbrella for a number of already existing sub-sectoral plans. Second, as part of the regional project, the assessments will contribute to sharing of knowledge and experiences among the countries of the region on common health system barriers to NCD control and promising approaches to overcome them. Early results of the assessment were featured in the High-level Meeting on Health Systems for Health and Wealth in the Context of Health 2020 in Tallinn, Estonia on 17-18 October 2013; the 10th Flagship Course on Health Systems Strengthening in Barcelona, Spain on 21–30 October 2013; the International Anniversary Conference Marking 35 Years of the Declaration of Alma-Ata on Primary Health Care in Almaty, Kazakhstan on 6-7 November 2013; and the WHO European Ministerial Conference on the Prevention and Control of NCDs in the Context of Health 2020 in Ashgabat, Turkmenistan on 3–4 December 2013.

Like many countries, the Republic of Moldova faces a growing NCD burden. NCDs are the main causes of mortality and morbidity, and have high priority in both the Moldovan National Health Policy for 2007–2021 and the Health Care System Development Strategy for 2008–2017. In recent years, the Government of the Republic of Moldova has implemented a number of reforms that have increased efficiency and equity in resource allocation, and have provided incentives to improve service delivery, including for NCDs.

A multidisciplinary expert team visited the Republic of Moldova from 21 to 24 May 2013. The team was joined by an expert team from the National health insurance company (CNAM), the National Centre of Public Health, the Center of Health Policies and Studies (PAS centre), and the State Medical and Pharmaceutical University, led by the Ministry of Health Department of Policies Analysis, Monitoring and Evaluation. During the mission, consultations were held with a wide range of experts and stakeholders involved in NCD control in the country. Presentations and small group discussions provided an opportunity to share information, review data, identify successes and challenges, and build consensus around some of the key points in this assessment. Individual follow-up meetings took place, as well as field visits to primary health care centres, district hospitals, territorial medical associations, the medical university and nongovernmental organizations (NGOs). These meetings and visits allowed impressions to be formed first-hand and information from documents, discussions and presentations to be compared with the situation in practice. Impressions formed were presented to key stakeholders at the end of the mission for further consensus-building. The draft report was reviewed and final input gathered in a two day policy workshop held 19th-20th of February 2014 with participation of senior MoH officials, representatives from nongovernmental organizations and development partners.

This report is presented in five sections. Section 1 outlines trends in key NCD outcomes, with a focus on mortality-based indicators. Section 2 assesses the coverage of the core population and individual services for NCD control. Section 3 discusses health system opportunities and challenges to core NCD interventions and services, while section 4 describes selected innovations and good practices in the Republic of Moldova. Section 5 concludes with policy recommendations.

<sup>a</sup> Source: Roberts MJ, Stevenson MA. Improving outcomes for noncommunicable diseases through health system strengthening. Copenhagen: WHO Regional Office for Europe, 2014 (forthcoming)

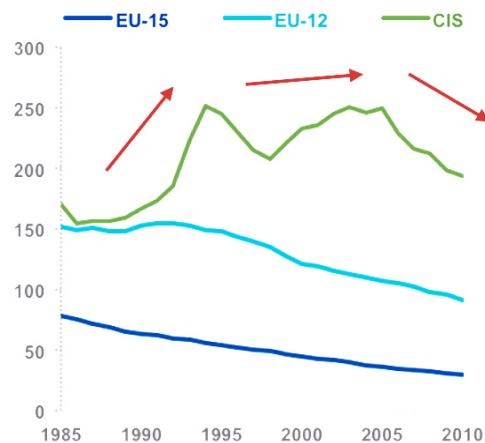
# 1. Noncommunicable disease outcomes

For many of the countries of the former Soviet Union, independence was accompanied by a sharp decline in health outcomes. In the early 1990s, many of these countries experienced a rise in mortality from noncommunicable diseases (NCDs), such as cardiovascular disease (CVD), with rates remaining high until around 2005, when they started to fall (Fig. 1).

Despite the recent downward trend in some of the main causes of mortality, there remains a significant gap in life expectancy between the countries of the former Commonwealth of Independent States (CIS) and the EU-15 countries.<sup>a</sup> Over half of this gap can be explained by circulatory disease mortality. Improvements in cardiovascular outcomes were responsible for over half the health gains made in the EU-15 in recent decades.<sup>2</sup>

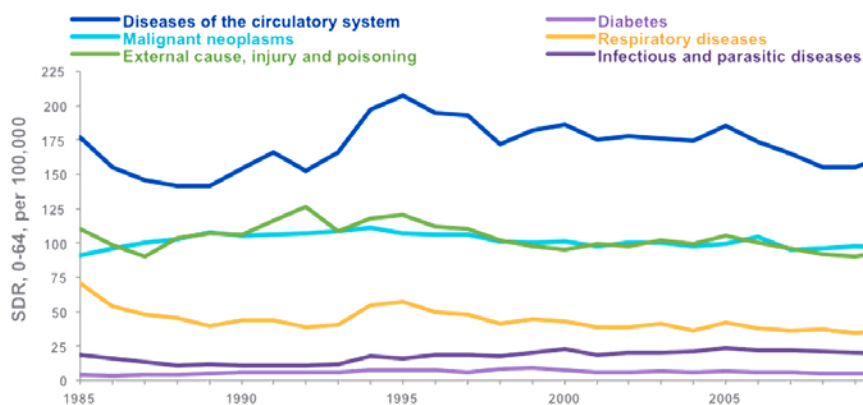
Despite impressive progress in health system reform, all-cause mortality in the Republic of Moldova continues to be high, with 1261 deaths per 100 000 population in 2012.<sup>3</sup> NCDs are responsible for the majority of this mortality (87%). Cardiovascular diseases are the leading cause, accounting for 55% of all deaths, followed by cancer (14%). Other leading causes of mortality include injuries (8%), respiratory disease (4%), diabetes (1%), and other NCDs (13%), with communicable disease, maternal and child health and nutritional conditions accounting for 5%.<sup>4</sup>

Fig. 1. Standardized death rate (SDR) per 100 000, diseases of the circulatory system, ages 0–64



Source: Health For All database.<sup>1</sup>

Fig. 2. Mortality trends in the Republic of Moldova, by main cause of death, 1985–2011



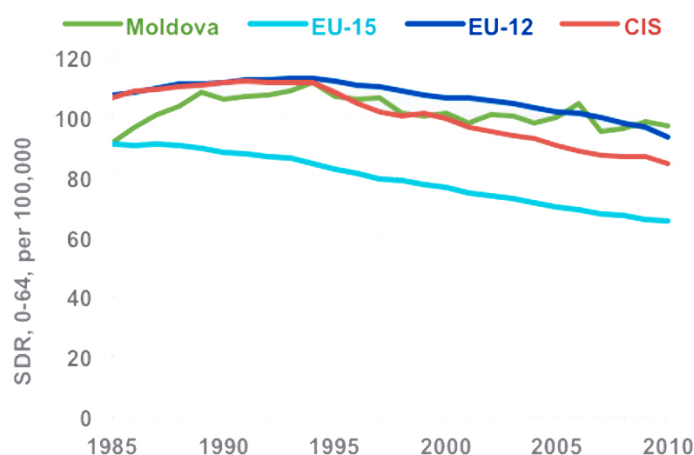
Source: Health For All database.<sup>1</sup>

Since 2005, CVD mortality, the leading cause of mortality in the Republic of Moldova has shown a clear downward trend (Fig 2) The same can be seen for respiratory disease. For cancer, the second leading cause of death, rates appear to be stagnant, unlike in the CIS countries and the EU-12, where all-cancer mortality is declining (Fig. 3). For diabetes no clear downward trend can be detected.

<sup>a</sup> See Annex 1 for an explanation of the country groupings used throughout this report..



Fig.3 Standardized death rate, malignant neoplasm by sub-region

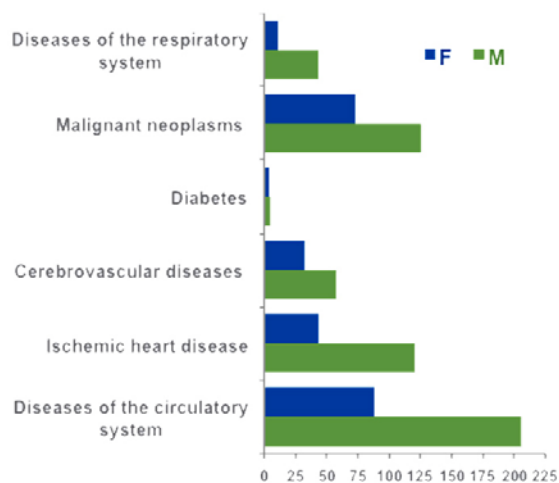


Source: Health For All database.<sup>1</sup>

According to the data from the National Institute of Oncology, the most frequently diagnosed cancers in women are breast cancer (22.1%), followed by colorectal cancer (11.1%); in men, the most common are lung cancer (17.7%) and colorectal cancer (14.2%).

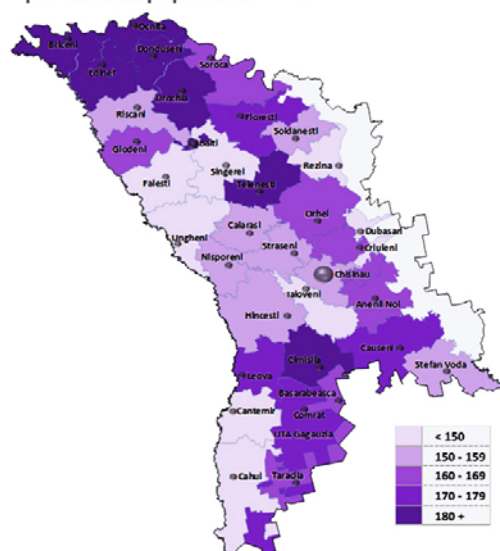
The burden of NCDs in the Republic of Moldova is unevenly distributed, with mortality from CVD, cancer and respiratory disease all significantly higher in males than in females (Fig. 4). An uneven distribution of mortality can also be seen across the country. For example, cancer mortality is higher in many rural districts (Fig. 5). The same is true for several other NCDs.

Fig. 4 Standardized death rates for males and females, by cause of death, 2011



Source: Health For All database.<sup>1</sup>

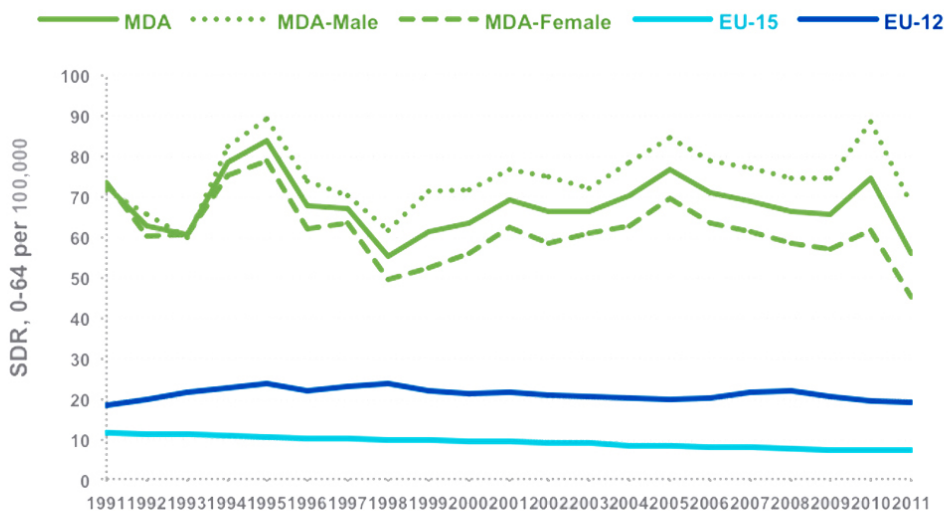
Fig. 5 Crude mortality rate, all cancers, per 100 000 population



Source: Ministry of Health, Centre of Health Management

Mortality from chronic liver disease and cirrhosis in the Republic of Moldova is the highest in the WHO European Region, with more than 70 deaths per 100 000. This is 3–7 times higher than the rates in the two EU groupings (Fig. 6 and 7). Rates are high throughout the country, but highest in the central part. Mortality from chronic liver disease and cirrhosis is often used as a proxy measure of a wide range of health problems associated with excessive alcohol use.<sup>3</sup>

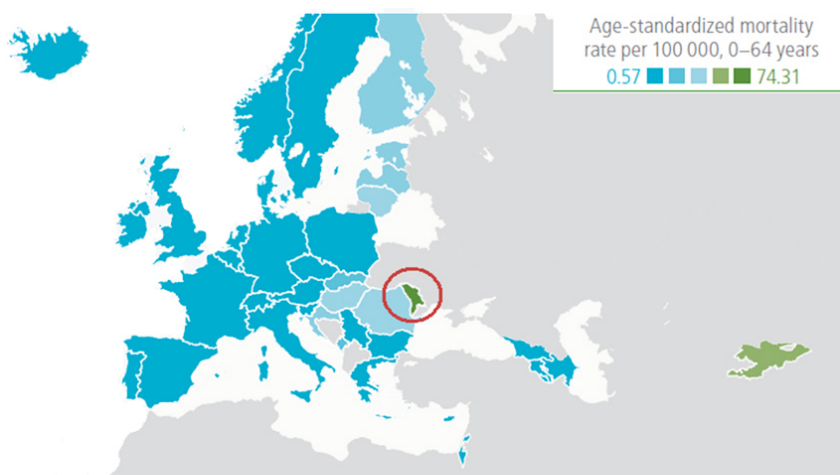
Fig. 6 Standardized death rate for chronic liver disease and cirrhosis



Source: Health For All database.<sup>1</sup>

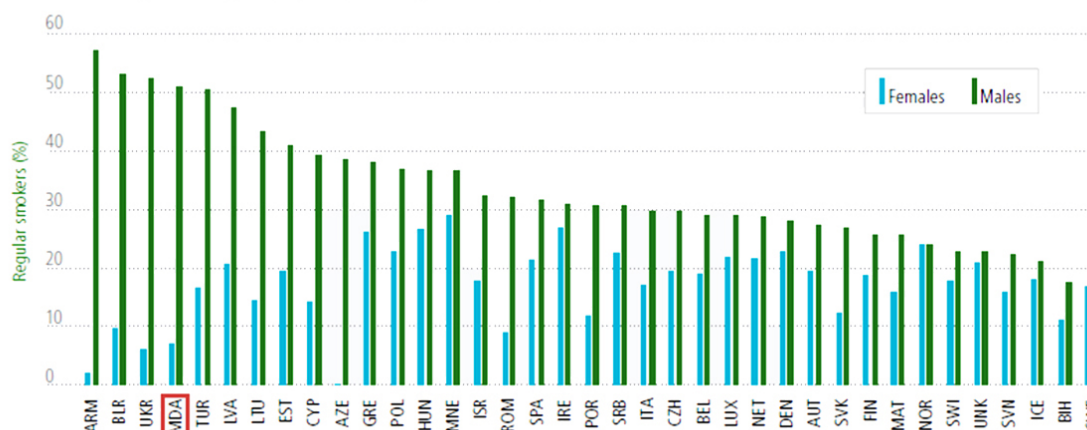
For the major groups of NCDs associated with high mortality rates, there are four main risk factors: tobacco smoking, harmful use of alcohol, physical inactivity and poor diet. Last reported data<sup>3</sup> indicate that the prevalence of smoking among men in the Republic of Moldova is the fourth highest in the WHO European Region. Per capita alcohol consumption is the highest in the Region (Fig. 8 and 9).

Fig. 7 Premature mortality from chronic liver disease and cirrhosis in the WHO European Region, last reported data, 2006–2010



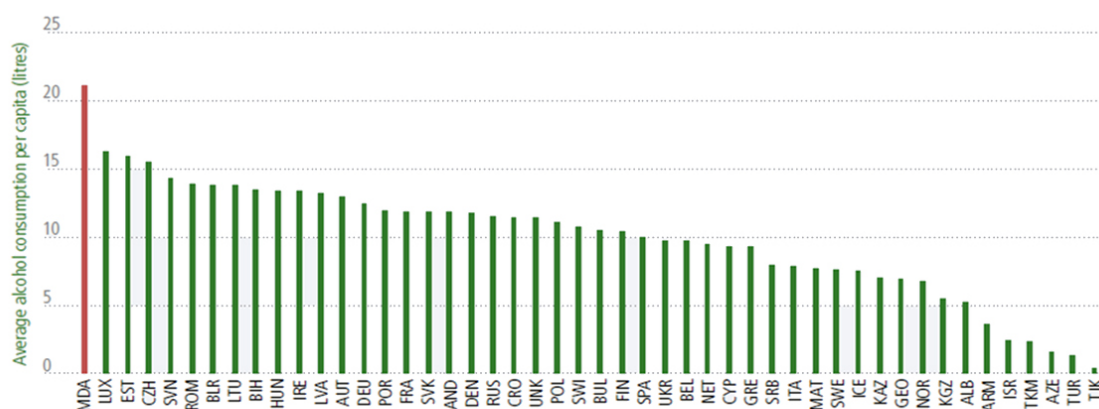
Source: Health For All database.<sup>1</sup>

**Fig. 8** Prevalence of regular smokers among the population aged 15 years and over in countries in the WHO European Region, by sex, last reported data, 2006–2010



Source: adapted from *The European health report 2012*.<sup>3</sup>

**Fig. 9** Average annual alcohol consumption per capita among the population aged 15 years and over in countries in the WHO European Region, last reported data, 2006–2010



Source: adapted from *The European health report 2012*.<sup>3</sup>

The global action plan on NCD calls for a 25% reduction in selected outcome indicators by 2025. Current trends suggest that this target may be feasible for CVDs and respiratory disease targets. Major health gains are possible with low-cost interventions at the population and individual level, increased coverage of core interventions to support a reduction in tobacco and alcohol use, a reduction in salt consumption, increase of physical activity, the treatment of risk factors for cardiovascular disease at primary care level and better management of acute episodes, such as heart attack and stroke.

## 2. Coverage of core NCD interventions and services

This section explores the coverage of core population interventions (related to tobacco and alcohol use and nutrition) and individual services (for prevention and management of CVD, diabetes, and cancer) that are closely linked with improving NCD outcomes. The core services reviewed are closely linked to the Global and European Action Plans for the Prevention and Control of Noncommunicable Diseases 2013–2020. They are evidence-based, high-impact, cost-effective, affordable and feasible to implement in a variety of health systems. Each intervention and service was reviewed by the assessment team, on a three-point scale, as limited, moderate or extensive. Exact criteria for the scoring were developed by WHO and can be found in Annex 2.

**Table 1. Core population interventions and individual services for NCDs\***

Core population interventions	Core individual services
<ul style="list-style-type: none"> <li>• Wide range of <b>anti-smoking</b> interventions               <ul style="list-style-type: none"> <li>– Raise tobacco taxes to reduce affordability</li> <li>– Smoke-free environments</li> <li>– Warning about the dangers of tobacco and tobacco smoke</li> <li>– Bans on tobacco advertising, promotion and sponsorship</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>CVD and diabetes – first line</b> <ul style="list-style-type: none"> <li>– Risk stratification in primary health care, including hypertension, cholesterol, diabetes and other CVD risk factors</li> <li>– Effective detection and management of hypertension, cholesterol, and diabetes through multidrug therapy based on risk stratification</li> <li>– Effective prevention in high-risk groups and secondary prevention after AMI, including acetylsalicylic acid</li> </ul> </li> <li>• <b>CVD and diabetes – second line *</b> <ul style="list-style-type: none"> <li>– Range of rapid response and secondary care interventions after AMI and stroke</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Interventions to prevent <b>harmful alcohol use</b> <ul style="list-style-type: none"> <li>– Use pricing policies on alcohol including taxes on alcohol</li> <li>– Restrictions and bans on alcohol advertising and promotion</li> <li>– Restrictions on the availability of alcohol in the retail sector</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Diabetes</b> <ul style="list-style-type: none"> <li>– Effective detection and general follow-up</li> <li>– Patient education and intensive glucose management</li> <li>– Hypertension management among diabetes patients</li> <li>– Prevention of complications (e.g. eye and foot examination)</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Interventions <b>to improve diet and physical activity</b> <ul style="list-style-type: none"> <li>– Reduce salt intake and salt content</li> <li>– Replace trans-fats with unsaturated fat</li> <li>– Implement public awareness programmes on diet and physical activity</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Cancer – first line</b> <ul style="list-style-type: none"> <li>– Prevention of liver cancer through hepatitis B immunization</li> <li>– Screening for cervical cancer and treatment of precancerous lesions</li> </ul> </li> <li>• <b>Cancer – second line</b> <ul style="list-style-type: none"> <li>– Vaccination against human papilloma virus as appropriate if cost-effective according to national policies</li> <li>– Early case-finding for breast cancer and timely treatment of all stages</li> <li>– Population-based colorectal cancer screening at age &gt;50 linked with timely treatment</li> <li>– Oral cancer screening in high risk groups linked with timely treatment</li> </ul> </li> </ul>

\* Indicates interventions and services added to the list in the WHO Global Action plan to allow a more comprehensive assessment (WHO, 2013a).

## 2. 1 Population interventions

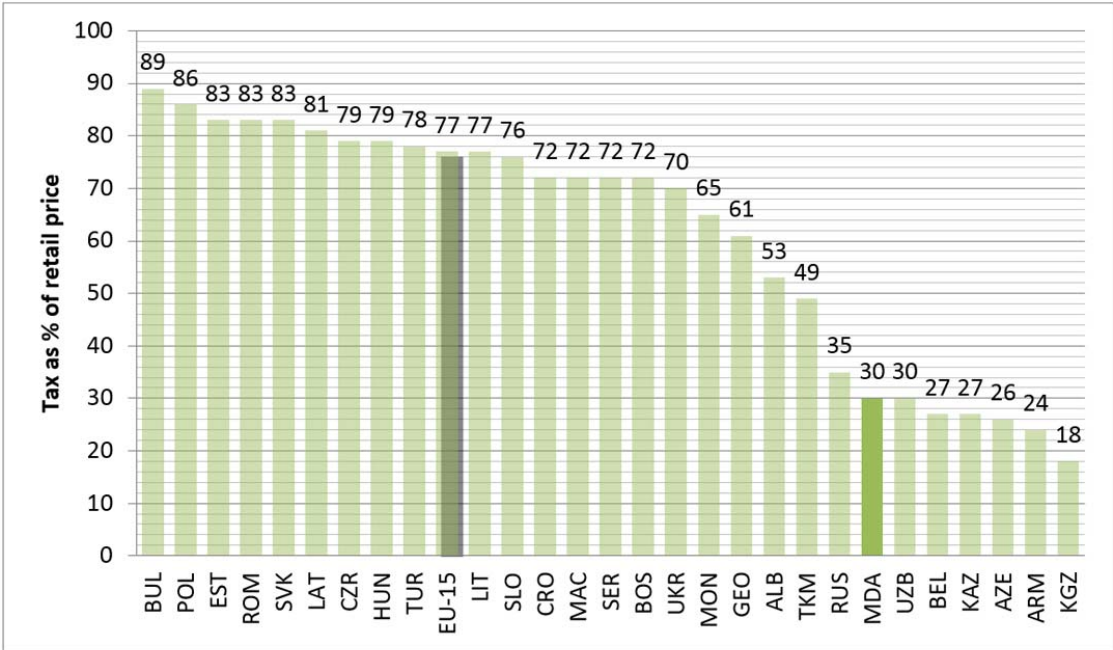
Great opportunities for NCD control exist in the area of population interventions in the Republic of Moldova, and taking advantage of them is going to be critical to the success of efforts to address NCDs. The ratification by the Republic of Moldova of the Framework Convention on Tobacco Control (FCTC) and the recent national alcohol and tobacco programmes offer an important platform, on which a number of actions could be built.

### Tobacco and alcohol

The Republic of Moldova is both a producer and an exporter of alcohol and tobacco. Alcohol production continues to be a major source of revenue for the Government. The local tobacco industry has reduced in size in recent years, as farmers move to more profitable crops, but official export figures are still around 900 million cigarettes per year, while overall annual production is estimated to be around 4.1 billion cigarettes.

In the national public budget, revenues from tobacco taxes rose from 130 million Lei (€7.1 million) in 2008 to about 830 million Lei (€45.5 million) in 2012. However, the taxation rate is still among the lowest in the WHO European Region and is lower than in most of the Newly Independent States.

Fig. 10. Tobacco tax as percentage of retail price



Source: WHO 2011.<sup>5</sup>

The tobacco legislation has been revised, and the new draft law is fully in line with the provisions of the FCTC. It still has to be approved by the Parliament, but could potentially have a significant impact on public health and NCD control.

The current law imposes a partial smoking ban in public buildings and workplaces but there are problems with enforcement. The legislation is outdated and includes a number of exceptions, especially in the hospitality sector. Some establishments in the hospitality sector have, however, introduced smoking bans, mainly by dividing their premises into smoking and non-smoking areas, which is not the best protective measure. Warning labels on cigarette packages have been introduced, but cover only 30% of the package size. There is a total ban on direct and indirect advertising of tobacco products on television and radio, and in written and electronic media; however, advertising is still permitted at points of sale and on smoking accessories, such as lighters and ash-trays. Cessation services are non-existent, but are expected to be developed

as part of the National Tobacco Control Programme 2012–2016. The National Centre of Public Health is currently developing counselling and treatment guidelines for health professionals.

As regards alcohol, there are laws on taxation, advertising and regulation of the availability of alcohol in the retail sector, but the legislation has exclusion criteria and enforcement is weak. Recent changes in legislation have even liberalized the selling of wine, by exempting it from taxation and restrictions on availability.

In May 2012, the minimum age for buying alcohol was increased from 16 to 18 years. Retailers are now obliged to ask buyers to present an identity card or other official document with a photograph. This is not fully enforced, however, and does not cover the sale of alcohol in bars and clubs. Sales in grocery stores and other retail points are restricted between 22h00 and 8h00. In 2012, the minimum price of strong alcohol products (25% proof or more) was further increased. There are indications that this may have resulted in reduced production of strong alcohol for the domestic market but increased export of strong alcohol products.

Taxes on alcoholic beverages such as vermouths, fermented beverages (cider, mead, etc.), distillates, liqueurs and vodka were recently raised, but not those on beer and related beverages. In 2012, a Government decision defined beer as an “alcoholic beverage”, although it can still be sold anywhere without a licence and without an age limit, and advertising is not restricted. In December 2013, the legal level of blood alcohol content for drivers was reduced to 0.3 g/l and the punitive measures have been tightened.

A legal initiative stipulating a total ban on advertising for alcoholic beverages, including beer, as well as the reduction of availability of alcohol in the retail sector, is expected to be approved by the parliament by the end of 2014. There are no counselling services for alcohol-dependent people at primary care level, but these are expected to be developed as part of the National Alcohol Control Programme 2012–2020.

Two national campaigns on tobacco and alcohol were carried out by the Ministry of Health in collaboration with WHO in 2012 and 2014 respectively. Tailored messages were given through television and radio broadcasts, outdoor advertisements, brochures, flyers and posters, flash mobs and community events. Various sectors were involved in the communication activities, including the police, medical students and residents, public health and primary health care centres, Teleradio Moldova and nongovernmental organizations.

#### *Diet and healthy lifestyles*

A healthy diet and lifestyle are important for better control of hypertension, diabetes and cardiovascular disease. In 2013, the Ministry of Health initiated in coordination with an intersectoral working group the development of a National Food and Nutrition Programme for 2014–2020. Public consultations will be held before the revised draft programme is tabled for government approval.

Other steps taken include legislation in 2012 prohibiting the preparation, distribution, and sale of food considered unhealthy for children in or within 100 meters of educational institutions. The Ministry of Health subsequently established a list of foods not recommended for children. However, there is no clear enforcement mechanism or penalties for non-conformity. In 2013, the Republic of Moldova participated for the first time in the WHO Childhood Obesity Surveillance Initiative. Following a year of preparations, a nationwide, population-based survey on risk factors for chronic disease was conducted for the first time from October to November 2013.

Common for all three major intervention areas – alcohol, tobacco and diet/lifestyle – are weak enforcement mechanisms, which greatly reduces the impact of legislation. Data collection and surveillance of risk factors also seem weak, considering their public health importance. Information is mainly collected through Multiple Indicator Cluster Surveys and Demographic and Health Surveys (DHS), although steps are being taken to broaden this base.

Table 2 summarizes the assessment team’s evaluation of the core population interventions for NCD control.

**Table 2. Evaluation of core population interventions for NCD control**

Intervention	Score card with comments <sup>a</sup>
<b>Anti-smoking interventions</b>	
Raise tobacco taxes	<b>Limited.</b> Tax is less than 25% of retail price (latest data from 2012).
Smoke-free environments	<b>Limited.</b> Smoking is prohibited only in schools and medical and sports institutions.
Warnings of dangers of tobacco and smoke	<b>Moderate.</b> Warning labels on all tobacco products at least 30% of package size (front and back).
Bans on advertising, promotion, sponsorship	<b>Limited.</b> Ban on national television, radio, mass media and Internet.
Quit-lines and nicotine replacement therapy (NRT)	<b>Limited.</b> No quit-lines or Government funded cessation services. NRT available, fully paid for by individual.
<b>Interventions to prevent harmful alcohol use</b>	
Raise taxes on alcohol	<b>Limited.</b> Aromatized wines, beer and spirits are taxed, but from 2013 wine is exempt from tax.
Restrictions, bans on advertising/promotion	<b>Limited.</b> Frameworks exist to regulate content and volume of alcohol marketing; there are problems with enforcement.
Restrictions on availability of alcohol in retail sector	<b>Moderate.</b> Regulatory frameworks on serving alcohol in governmental institutions and ban on serving alcohol in educational institutions.
Minimum purchase age with enforcement	<b>Limited.</b> Minimum age of 18 to purchase alcohol products but limited enforcement.
Allowed blood alcohol level for driving	<b>Limited.</b> Maximum permitted blood alcohol level 0.3 g/litre
<b>Interventions to improve diet and physical activity</b>	
Reduce salt intake and salt content in foods	<b>No data/limited.</b>
Virtually eliminate <i>trans</i> -fatty acids from the diet	<b>Limited.</b> There is no evidence that trans-fats have been significantly reduced in the diet.
Reduce free sugar intake	<b>Limited.</b> The aim to reduce the intake of free sugars is mentioned in policy documents but no action has been taken.
Increase intake of fruit and vegetables	<b>Limited.</b> The aim to increase consumption of fruits and vegetables is mentioned in policy documents, but no specific actions have to been taken.
Reduce marketing of food and non-alcoholic beverages to children	<b>Moderate.</b> Legislation prohibits the preparation, distribution and sale of foods considered unhealthy for children in or within 100 m of educational institutions. There are no clear enforcement mechanisms or penalties.
Promote awareness about diet and physical activity	Not assessed

<sup>a</sup> For details of evaluation criteria, see Annex 2.

## 2.2 Individual services

The Republic of Moldova has made impressive progress in health system reform in recent years. Actions have included prioritizing health resourcing within the state budget, health system finance reform, prioritizing primary health care, and improving efficiency in the area of pharmaceuticals. There are now excellent opportunities to build on this basis and strengthen the coverage of core individual services for NCD control, including detection and management of risk factors, such as hypertension and hyperlipidaemia, and improve management of acute NCD events, such as acute myocardial infarction (AMI) and stroke.

### *Cardiovascular disease and diabetes*

While there have been improvements in detection of hypertension at the primary health care level, our findings suggest that relatively few patients are officially registered as having hypertension. Field visits revealed that approximately 10–12% of assigned patient populations are officially registered with hypertension, whereas hypertension prevalence is estimated to be possibly as high as 50%.<sup>6</sup>

Patients with hypertension are routinely stratified according to their risk of CVD complications, calculated using the Systematic Coronary Risk Evaluation (SCORE) risk tables. This method is recommended in the national clinical protocol on hypertension and doctors receive pay incentives for calculating CVD risk through the health insurance company's pay-for-performance bonuses.

Patient adherence to long-term antihypertensive treatment is low; research has shown daily adherence rates of only 27%<sup>1</sup> This is despite the most commonly used antihypertensive and oral hypoglycaemic agents being on the CNAM reimbursed drug list and available to insured patients at a 50–100% discount.

Annual screening for diabetes in patients over 45 years, using fasting blood sugar, has become routine since its incorporation in the pay-for-performance scheme in January 2013. This and other CVD risk factors, with the exception of smoking, are usually documented in health records, a practice facilitated by the use of special chart inserts developed at the facility level.

Data gathered during site visits suggest that clinicians do not routinely base primary prevention decisions on CVD risk scores, which results in overtreatment with aspirin and under treatment with statins. Treatment with statins tends to be based on cholesterol levels alone, rather than overall CVD risk. Even when they are deemed necessary, statins are often not prescribed or taken because of their high cost (statins are currently not included in the list of reimbursed drugs). Secondary prevention after AMI with aspirin and beta-blockers is routine.

Diabetes schools for patients exist in family medicine centres and health centres, but their effectiveness is questionable, as attendance is limited and educational materials are sparse. Glucometers are provided to patients with diabetes at no cost, but test strips must be paid for, limiting the use of home blood sugar monitoring.

### *Acute events*

There is a well functioning emergency response service throughout the country, organized into four regional stations, 41 substations, and 85 emergency posts to ensure a coverage radius for each post of less than 25 km. There is approximately one ambulance per 10 000 population, but emergency medical service (EMS) staffing rates are low, at 56.5%. Ambulances seen during the site visits were well equipped with electrocardiograph (ECG) machines, defibrillators, oxygen, oxygen saturation monitors, and glucometers. Patients suspected of having acute coronary syndrome (ACS) are given oral nitrates; aspirin is typically given at the hospital.

There is an excellent health information system used by all ambulance stations, which allows detailed analysis of response times and quality of delivered services. Essential laboratory services (including cardiac enzymes), ECG, and plain radiographs are available 24 hours a day at the territorial hospital level. Aspirin, heparin, beta-blockers, and angiotensin-converting enzyme (ACE) inhibitors are routinely prescribed to patients with ACS. Thrombolytics are not administered at the territorial hospital level for AMI, and mortality rates from AMI are high (30–35%).<sup>b</sup> Non-evidence-based medications (e.g. diphenhydramine, papavarine and Actovegin) are frequently prescribed to patients admitted with hypertensive urgencies, ACS or AMI, despite the availability of national clinical protocols.

Only about one-third of patients with ACS are admitted through the ambulance service, and long delays in seeking care are typical. A study in 2010 by the emergency service system found that 30% of patients with ACS presented within six hours; however, at one territorial hospital, of 239 patients admitted with ACS in 2012, no patients were admitted within six hours of onset of pain, and only 9% within 24 hours.



### *Cervical and breast cancer*

There is wide variation in access to cancer screening throughout the country, with higher coverage in territorial medical associations (Chisinau) and rayons (districts) covered by pilot programmes, but limited access and long delays in obtaining cervical cytology results in regions outside the capital.

Official statistics suggest that, in 2010, 62% of at-risk women were screened with Papanicolaou (Pap) smears. In most territorial health administrations and family medicine centres, nurse-midwives, rather than family doctors, perform all of the Pap smears. Throughout the country, methods used to fix and stain the smears are not consistent with international standards and there is no system in place for external quality control of cervical cytology.

Only four of nine inter-rayon laboratories have cytologists to read Pap smears, resulting in overloading of cytology laboratories in Chisinau. Outside of six rayons included in a national pilot project to improve cancer screening, women are typically referred to the capital for mammography because of outdated equipment at the periphery.

Table 3 summarizes the assessment team's evaluation of the core individual services for NCD control.



<sup>b</sup> Statistics obtained from territorial hospitals and ambulance stations during site visits.

**Table 3 Evaluation of core individual services for NCD control**

Service	Score card with comments
<b>CVD</b>	
Risk stratification in primary health care	<b>Moderate.</b> Patients with hypertension routinely assigned to risk group (SCORE method). Most risk factors, except smoking, are documented.
Effective detection and management of hypertension	<b>Limited.</b> Detection of hypertension is improving, but still low. Low levels of continuous use of antihypertensives, with limited effort to address adherence issues. Branded antihypertensives commonly prescribed.
Effective primary prevention in high-risk groups	<b>Limited.</b> Clinicians do not routinely base primary prevention decisions on CVD risk scores, resulting in overtreatment with aspirin and under treatment with statins.
Effective secondary prevention after AMI, including aspirin	<b>Moderate.</b> Aspirin and beta-blockers routinely prescribed after acute myocardial infarction. Low level of statin use.
Rapid response and hospital for AMI and stroke	<b>Limited.</b> Ambulance service is well organized and functioning well, but patients often present late (low population awareness). Some essential services at central rayon hospital level (acetylsalicylic acid, beta-blockers, ACE inhibitors, heparin), but thrombolytics are not used. Non-evidence-based drugs are frequently prescribed. The management model for stroke is outdated.
<b>Diabetes</b>	
Effective detection and general follow-up ( <i>additional criteria not in Global Action Plan</i> )	<b>Limited.</b> No evidence-based systematic method to select patients for screening (screening all patients over age 40). <sup>c</sup> Only about 2.5% of population registered as having diabetes.
Patient education on nutrition, physical activity and glucose management	<b>Moderate.</b> Diabetes schools exist, but attendance is limited, especially in rural areas and curriculum not standardized. Glucometers are provided free of cost, but not test strips. Glycaeted haemoglobin (HbA1C) tests can be ordered by endocrinologist only; less than 75% had a HbA1C test in past year.
Hypertension management among patients with diabetes	<b>Not assessed</b>
Preventing complications	<b>Not assessed</b>
<b>Cancer</b>	
Hepatitis B immunization	<b>Extensive.</b> Extensive coverage with routine immunization against hepatitis B (>95% coverage).
Cervical cancer screening and treatment of lesions	<b>Limited.</b> Significant urban/rural gap, with lower levels of screening (overall 60%) and long delays in receiving results (up to 3 months) in rural areas. Collection and processing methods not in line with international standards. No external quality assurance of cytology.
Early case-finding for breast cancer and treatment of all stages	<b>Limited.</b> Significant urban/rural gap. Limited coverage by mammography outside pilot studies. Quality control questionable.

For full score card criteria see the country assessment guide.

<sup>c</sup>The assessment found that there is a discrepancy between the MOH regulation(MOH prekaz, May 2013) on diabetes screening (over 40) (MOH prekaz, May 2013)and the pay-for-performance indicator used by NHIC (over 45)

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

To deliver the core services outlined in section 2, the Moldovan health system needs to perform distinctive tasks on primary and secondary prevention, disease management, and treatment of acute events. This section reviews the health system features that influence performance of these tasks (Fig. 11).

**Fig. 11. Fifteen health system challenges and opportunities to improve NCD outcomes**

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

Source: Roberts MJ, Stevenson MA. Improving outcomes for noncommunicable diseases through health system strengthening. Copenhagen: WHO Regional Office for Europe, 2014 (forthcoming)

#### 3.1 Developing political commitment to better NCD control

*Political commitment and support to the NCD agenda have an important influence on NCD control. Translation of this commitment into action to keep NCDs high on the agenda for what are often politically difficult reforms (e.g. anti-tobacco policies, reform of medical education) is critical. In the Republic of Moldova, two main documents outline the overarching policy framework for health while health is seen as a cross cutting issue the national development strategy – Moldova 2020.*

The Moldovan National Health Policy 2007–2021 is an overarching document specifying the role of all sectors in safeguarding the health of the population. NCD control is well covered in this document, which includes specific chapters on tobacco and alcohol, nutrition and healthy lifestyles, and noncommunicable disease, including CVD, diabetes, cancers and chronic obstructive pulmonary disease (COPD). The document also includes more general chapters highlighting the important role of health promotion and disease prevention. The document is declarative in nature, and does not provide a clear indicator framework.

The newly approved “Moldova 2020” outlines an overarching development strategy for the country. It does not have a particular section on health, which is seen as a cross-cutting area, and health is not covered under the existing priority areas. The document does have chapters on roads, education, finance, business development, energy, pension and the justice system.

At the health sector level, the Republic of Moldova has adopted the Health Care System Development Strategy 2008–2017. This Strategy follows the health system framework described by WHO and is accompanied by an action plan and a monitoring framework. The context for the Strategy development and implementation is summarized in the quote below, which highlights the key focus on strengthening quality and efficiency of the health care system.

“Over the last years Republic of Moldova has registered significant progress in reforming its healthcare system. The first phase of the reform process was oriented towards stopping the decline in the healthcare system conditioned by the financial crisis over the last decade of the previous century. The second phase was marked to a great extent by the introduction of the mandatory health insurance which was accompanied by a significant increase of system funding, improvement of the financial protection of the population and its access to healthcare services. The next phase provides for the mobilization of all resources for structural changes that would result in increased efficiency and quality of the healthcare system.”

Moldovan Health Care System Development Strategy 2008-2017

The Health Care System Development Strategy highlights the increasing burden of NCD and focuses on systems aspects of NCD control, including the need for a strong public health system.

“The consumption of alcohol and tobacco are also significant risk factors that determine the epidemiologic profile of the country due to the fact that these practices are closely connected with many chronic diseases, such as the diseases of the circulatory system, malignant neoplasms, and especially, diseases of the liver.”

Moldovan Health Care System Development Strategy 2008-2017

The document also highlights the need for an integrated information system and the importance of strengthening evidence-based medicine and accreditation of facilities. Several of the priority actions mentioned in the document have already been implemented, including the introduction of clinical protocols and the adoption of Good Manufacturing Practice (GMP) standards for pharmaceuticals.

## 3.2 Creating explicit processes for setting priorities and limits

*In every health system, priorities need to be set to determine the allocation of scarce resources. How this process is organized, including the level of transparency and criteria for prioritization, is an important health system feature influencing NCD control.*

In the Republic of Moldova, health expenditure as a percentage of the state budget has remained fairly stable and is among the highest of the CIS countries, ranging between 12.5% and 12.8% over the past 5 years. The Ministry of Health is in charge of planning and executing the state budget in the health sector. Once the overall budget has been approved by Parliament, the Ministry can reallocate the resources according to current priorities or emerging needs. The

**Table 4. Health expenditure in the Republic of Moldova, 2008–2012**

	2008	2009	2010	2011	2012
Health expenditure as % of total state budget <sup>a</sup>		12.6	12.6	12.8	12.8
National health budget (public) (million Lei)	3391.3	3846.8	3996.5	4261.1	4590.6
Public health budget as % of total health budget <sup>b</sup>	3.2	3.3	3.2	2.3	2.38
Public health budget (million Lei)	109.5	127.9	128.9	104.1	109.2

<sup>a</sup> Source of data: Ministry of Finance.

<sup>b</sup> Source of data: Ministry of Health, unpublished mission report (Republic of Moldova graduating from GAVI support: situation analysis and transposition plan) 2012.

Republic of Moldova has prioritized primary health care, allocating between 25% and 30% of public health expenditure to PHC. Only 2.3–3.3% of overall health expenditure goes to public health, and the proportion is even decreasing (Table 4).

**In line with policy commitments, the Republic of Moldova has started to address the major risk factors for NCDs.** In 2012, two national programmes were launched, related to alcohol and tobacco control, respectively. The Parliament has also approved an NCD strategy, and a related plan of action is under development. Importantly, the Republic of Moldova has ratified the Framework Convention on Tobacco Control. These are important steps and it is vital to continue on this path in order to reduce mortality from major NCDs.

**Our assessment could not identify a clear process for determining the allocation of resources between public health and individual services.** This carries the risk that funding may be allocated to demanding aspects of individual service delivery at the expense of cost-effective public health measures that will, in the long term, reduce the pressure on individual services. NCD mortality and morbidity cannot be reduced without a strong focus on population-based risk factor control.

**Further work is needed to strengthen public health services for NCD control.** Although legislation on public health was enacted in 2009, progress has been slow and financing continues to be low. CNAM co-finances public health programmes on tobacco and alcohol. A prevention fund has been established, and contained 35.9 million Lei in 2013. The funds are divided between reducing risk of disease, e.g. cancer screening (32.2 million Lei (90%) in 2013) and promoting healthy lifestyles, e.g. public health measures to reduce alcohol and tobacco use (3.7 million Lei (10%) in 2013). In 2011, for example, the Ministry of Health and CNAM organized a public prevention campaign, and brochures and information materials were also produced for the districts.

The CNAM health insurance fund covers 82% of the population; coverage of the 18%, remaining uninsured is reportedly to an extent related to high rates of economic migration. The basic benefit package (BBP) includes primary health care, inpatient services, specialist care, palliative care, CVD, diabetes, COPD, and some cancer and emergency care. Of the individual core services listed in table 4 most are covered with the exception of cholesterol-lowering statins and some of the second-line treatment for stroke and myocardial infarction.

BBP coverage of the population has been strengthened in recent years. Since 2010, there is universal coverage of primary health care and emergency services. Payment mechanisms are in place that improve equity in resource allocation and provide incentives for health care providers to deliver better services. **Since 2013, additional incentives have been introduced through a “pay-for-performance” mechanism to improve the screening and management of core NCDs at primary care level.**

Financial coverage remains a challenge. Out-of-pocket expenditures are high, at over 45% of total health expenditure in 2011, and are largely driven by outpatient drug expenditure (see section 3.10).

The resource allocation process is not entirely clear, particularly when resources are insufficient. In most instances, rationing of services seems to be done de facto rather than as a result of a transparent priority-setting process.

The Republic of Moldova has a policy on palliative care and a comprehensive regulatory framework to cover these services (see section 4).

### 3.3 Strengthening interagency cooperation

*The success of NCD control is highly influenced by the level of government commitment to health in general, and how well this translates to multisectoral action in areas such as tobacco, alcohol, diet and healthy lifestyles.*

**The major NCDs have common risk factors. The high prevalence of these risk factors in the Republic of Moldova means that intersectoral action is very important for effective NCD control.** The ratification of the FCTC by the Republic of Moldova has set the stage for greatly strengthening tobacco control. In 2012, two multi-stakeholder committees were set up, on alcohol and tobacco, respectively. Both have broad representation from relevant government sectors and nongovernmental parties, and are chaired by the Deputy Prime Minister. The enabling factors for effective collaboration across sectors include: national leadership from the highest level (Deputy Prime Minister or similar); a well articulated, jointly owned plan of action, with clear division of tasks, and benchmarks or progress indicators; clear coordination and review mechanisms to discuss progress; and, ideally, joint funding.

In the case of tobacco, the coordination committee mechanism is explicitly linked to the implementation of a tobacco control programme, while at the time of writing this is not yet the case for the alcohol committee, which was established in late 2013. Developing an effective link to an implementation programme, monitoring and reviewing progress, and increasing the proportion of funding that is shared or coordinated will be important for both tobacco and alcohol.

An intersectoral coordination committee has recently been set up to develop a national programme on diet and healthy lifestyles.

In all three areas, the enforcement modalities are unclear, which greatly reduces the potential impact of legislation. Effective enforcement requires good intersectoral collaboration and a high priority at national level.

### 3.4 Enhancing population empowerment

*Many NCDs are chronic in nature, which means that citizen empowerment and the active involvement of patients in the management of their condition are essential for NCD control.*

**Diabetes and hypertension clubs or “schools” have been started in primary health care facilities throughout the country; they are a positive innovation and should be developed further.** In these schools, patients participate in a series of lessons, typically led by a cardiologist, endocrinologist, or family doctor, covering topics such as lifestyle modification, medical management, and the importance of adherence to treatment. Doctors receive pay-for-performance points, based on the number of patients who participate.

**Patient attendance and engagement in these schools is highly variable, and there is no standardized educational package.** There are no particular system incentives for patients to participate in the schools (e.g. reduced prices for drugs). To date, there has been no evaluation of the impact of these schools on patient behaviour or on blood pressure control. CNAM has funded the production of materials, including on cessation of tobacco smoking, but these are not systematically integrated in the schools and do not appear to be part of a defined package of educational and promotional materials.

**Patients with myocardial infarction or stroke tend to present late for hospital care.** This may be because of low awareness among the population of the warning symptoms of these acute events and the benefit of early treatment. Another possible explanation is perceived or real financial barriers to treatment. The results of a study on access to care showed that 33% of patients did not access health care when needed, 20% of whom cited unaffordability of services as the reason.

**Nurses and community workers could be better used to strengthen health promotion and prevention of NCDs.** For example, nurses and mid-level health workers could take on a greater role in risk factor control (e.g. hypertension) and promotion of good practice in preventing diabetes complications.

## 3.5 Establishing effective models of service delivery

*The organization of service delivery remains one of the most important health system features for NCD control. Despite decades of efforts, health systems in many countries remain hospital-centred and specialist-driven. Yet, the delivery of core services requires strong primary health care with a broad task profile. Ideally, primary health care would provide core services for NCD patients, with handover to specialized care levels for acute and complex events, and an engaged and proactive re-transfer to the primary level for disease management. Effective primary health care is also central to peer-to-peer patient education programmes, support groups and health promotion outreach activities. Primary health care needs to become the hub of care, with empowered patients as frontline workers and with information technology facilitating coordination and transfer of information.*

**The balance between primary care and hospital care is at the core of service delivery reforms in the Republic of Moldova.** The model of primary health care, as outlined in current regulatory documents, is reasonable. Patients are assigned to a primary care provider, but have the option of enrolling with a different provider of their choice no more than once a year. Patients are expected to see their primary care provider for non-emergencies, and can then be referred, if necessary, either to a specialist as outpatients or to a hospital. For patients referred by a primary care provider to a specialist, the consultation and associated diagnostic testing should be free of charge. Patients who seek care directly from a specialist without referral are required to pay for all services.

Facilities are typically open on weekdays from 08h00 to 17h00 and at least half a day on Saturdays. An appointment system is working well in the territorial medical associations (TMAs) in Chisinau, but outside the capital patients are seen on a first-come, first-served basis. Most health centres have introduced nurse check-in rooms; patients are expected first to register and get their ambulatory record, and then to go to the nurse check-in room, where blood pressure, pulse, and heart rate are routinely measured. However, many established patients bypass this check-in process and go straight to their doctor.

The system of chronic disease management introduced during Soviet times (the dispensary system) is still partially followed, in that patients with certain chronic illnesses are officially registered in a journal. However, content of care is now governed primarily by recommendations and standards listed in the clinical protocols.

Problems in the current model of service delivery include the following.

- *In many cases, the gatekeeper role of primary health care providers is being bypassed. A study in 2010 showed that up to 45% of patients seek care directly from a specialist,<sup>7</sup> while a survey in 2012 indicated that 22% of rural and 29% of urban patients go to a specialist first for new health problems.<sup>12</sup>*
- *There is an over-reliance on specialists to manage patients with uncomplicated NCDs, such as hypertension and type 2 diabetes. Although most family doctors feel confident to diagnose and manage hypertension, the national clinical protocol obliges them to refer patients to a cardiologist for confirmation of diagnosis, management recommendations and routine consultation at least once a year. Referral to a specialist is also obligatory for diabetes and asthma, for confirmation of diagnosis and routine follow-up. However, family doctors feel less confident about their ability to diagnose and manage these illnesses independently. Glycosylated haemoglobin tests can be ordered only by endocrinologists, which also promotes over-reliance on specialists; all family doctors should be familiar with the use of this test for both diagnosis of diabetes and management of glycaemic control.*
- *Although nurse check-in rooms exist in most primary health care facilities, only a small percentage of patients go through this examination before seeing the doctor. Checking and documenting vital signs then becomes the physician's responsibility, which may be contributing to the low hypertension detection rates.*

- *Almost all primary health care facilities focus on screening for hypertension only in patients over 40 years.*
- *The ratio of retrained to fully trained family physicians is very high, with up to 80% of doctors in primary health care centres having gone through only a 4–6 month retraining.*
- *Mid-level providers are not used to their full potential. Nurses do not take an active role in educating patients during clinic visits or in leading educational sessions in schools for patients with diabetes and hypertension. Whenever possible, specialists lead these schools.*
- *A Pap smear once every two years for all women of reproductive age, as currently recommended, may not be the best approach to cervical cancer screening in the current model of care, where not all family doctors perform Pap smears and there is a shortage of cytologists.*

### 3.6 Improving coordination across providers

*Unlike the treatment of a one-off infection, care for patients with NCDs typically involves coordination among multiple providers. Primary care physicians treating chronic NCD patients need to be able to refer them to specialists when complications develop. They also need to collaborate with non-physician partners (e.g. health educators, dieticians, physiotherapists) if they are to provide optimal care, whether before or after acute events.*

Primary health care providers in the Republic of Moldova typically see coordination of patient care as their role, rather than that of a specialist. Communication between primary care providers and specialists working with outpatients is typically good, as they work from the same ambulatory health record, which contains the results of all tests.

There is no formal mechanism for primary health care workers to provide a general health summary or make specific consultation requests to specialists or hospital providers. The standard referral forms are mostly for recording biographical rather than clinical data. Because all notes are handwritten, it is not uncommon for providers to have difficulty reading each other's clinic notes.

Hospital discharge summaries typically contain key hospital data, final diagnoses, and recommendations; however, it is not uncommon for there to be delays in primary care workers receiving hospital discharge summaries, especially if follow-up is geographically distant from the hospital site.

As indicated in section 3.5, studies have shown that up to 45% of patients may seek specialist care first, which causes the system for coordination and referrals to break down.

### 3.7 Taking advantage of economies of scale and specialization

*When it comes to management of acute events connected to chronic NCDs, or cancer care, some health care systems support too many institutions performing highly complex procedures. There are two disadvantages to this. One is connected to what economists call "economies of scale", whereby the average cost of a unit of output is lower in a large-volume facility than a small-volume one. The second aspect is related to the well demonstrated relationship between volume and outcome; centres that deal with a large number of cases have significantly better outcomes than those with small numbers.*

**The Republic of Moldova is in the process of reviewing and defining the administrative and technical roles for district (rayon), regional and central levels.** In particular, the regional level needs clearer definition. This will affect all sectors, including health service delivery.



The contributions of the three levels are not well defined for NCD control. As a result, all 34 rayons have some level of service, but there is considerable variation depending on the availability of specialists and infrastructure. A hospital reform plan has been drafted that foresees centralizing selected secondary services to between three and seven centres, with the remainder of the rayons having a more general portfolio of services. For AMI and stroke, the focus has been on strengthening emergency services, including ambulance services, and defining and strengthening referral mechanisms. Improvements have been made in the ambulance system, with investments in both equipment and staff. In 2012, the Ministry of Health initiated a process of decentralization and regionalization of chemotherapy services. The aim is to bring chemotherapy services closer to the patients, by creating two departments in the North (Balti) and South (Cahul) regions in addition to currently existing services at the Institute of Oncology in the capital city. A feasibility study for the regionalization of chemotherapy services was conducted in 2012–13 with World Bank support, and submitted to the Ministry of Health for a final decision.

**Decisions about centralization versus decentralization of services must take a number of factors into consideration**, including: the volume of the service to be delivered (e.g. cervical cancer screening is high-volume, while interventions for AMI would be lower); the cost and technical expertise required to deliver the service (e.g. administering thrombolytics is not technically demanding or high-cost, whereas coronary angiography and stenting are); the availability of human resources (e.g. forming stroke teams for inter-rayon or rayon hospitals would be nearly impossible in the current environment); and the feasibility of transporting patients to higher levels of care where technical services can be provided.

**Current clinical protocols do not contain clear referral recommendations reflecting regionalization of service delivery based on the above criteria.** This results in some patients being managed at regional levels, but not getting the services they need (e.g. thrombolytics) and others receiving decentralized services of insufficient quality (e.g. cervical cytology without quality assurance or mammography performed by inexperienced radiologists using outdated equipment).

### 3.8 Creating the right incentive systems

*The health financing system, including the payment mechanisms in primary care, outpatient specialist and hospital levels, are important determinants of quality and efficiency in the health system.*

General health care financing reforms began in the Republic of Moldova in 2004; they included the start of the national health insurance company, (CNAM established by law in 2002 and operational in 2004) and the introduction of new methods of financing, providing more autonomy to hospitals and improving access. In 2010, health care coverage was expanded with primary health care and emergency outpatient services being made available for the whole population, whether insured or not. Payment mechanisms in place improve equity in health resource allocation and provide incentives for health care providers to deliver better services. Since 2013, additional incentives have been introduced through a pay-for-performance mechanism to improve screening and management of core NCD diseases in primary care. CNAM allocates resources to local NGOs to provide palliative care for patients with selected diseases, including cancer. The Ministry of Health has a specialist who facilitates communication between primary health care and communities, but there are limited financial incentives and resources (e.g. educational materials) for patient education and counseling about NCD risk factors and behavior change.

Maintenance of public spending on health is at an adequate level. During the last 5 years expenditures on health amounted to no less than 5% of GDP and at least 12% of total state expenditures (Table 5).

**Table 5 Health expenditure in the Republic of Moldova, 2008–2012**

	2009	2010	2011	2012	2013
Public Health Expenditures as% of GDP	(6.4)	5.6	5.2	5.4	5.1
Public Health Expenditures as% of Total State Budget	12.6	12.6	12.8	12.8	12.5

Data Source: Ministry of Finance

### *Primary health care*

**The Republic of Moldova has given priority to the development and financing of primary health care.** Expenditure on primary health care has accounted for 25–30% of the total health budget in recent years (26% in 2013). Expenditure on drugs provided to outpatients is less than 4% of the total health budget (or 14% of the primary health care budget in 2013). A capitation payment scheme for primary care is in place. Currently, capitation payment bands are defined according to three age groups: children under 5 years; children and adults aged 5–49 years, and adults above 50 years.

**The capitation model could be refined on the basis of an examination of use of primary health care services by age group and sex.** Studies in the countries of Central Asia and several regions of the Russian Federation have demonstrated that the population between 20 and 49 years of age rarely seeks primary care. Importantly, men attend almost 50% less than women. The peak of hospitalizations for both men and women (excluding for childbirth) occurs in the age group 40–65 years. Circulatory system diseases are the most important reason for hospitalization among both men and women. If the situation in the Republic of Moldova is similar, consideration should be given to including additional incentives to family physicians to give more attention to this group.

**In 2012, the Republic of Moldova introduced a full pay-for-performance system.** This is additional to the basic system of per capita funding. Overall 85% of the budget of primary health care providers is based on capitation, while an extra 15% can be obtained by carrying out certain interventions as specified in a menu of indicators. A total of 22 indicators have been set for 2013 against which the payment is made, including nine indicators to improve screening and management of NCD (hypertension, diabetes and cervical cancer) (see Table 6).

**This is an important step in the right direction. Over time, it will be important to determine further the most appropriate mix of payment mechanisms, including the size of payment, frequency and set of indicators.**

**Table 6**

Condition	Indicators
<b>CVD/hypertension</b>	No. of people over 18 years diagnosed for the first time with hypertension No. of people registered as receiving treatment for hypertension No. of people trained in hypertension schools No. of people with SCORE risk chart done
<b>Cervical cancer</b>	No. of people over 25 years who have had a gynaecological examination and Pap smear No. of people with confirmed early stage malignancy (microscopic stage 1, macroscopic 1–2)
<b>Diabetes</b>	No. of people over 45 years with glucose measured for the first time No. of people with diabetes treated by family doctor in accordance with protocol No. of people with diabetes confirmed and trained in diabetes schools.

The pay-for-performance indicators are mainly aimed at monitoring the process of interventions. This is good but in the long term it may be necessary to include indicators that reflect the totality

of action or impact achieved, for example percentage of women in a specific age group screened during the past year. So far, there does not appear to be a strong link at the provider level between incentives provided by the scheme and the management of quality in health facilities. The introduction of incentive payments based on performance results at the level of primary health care is a good start, but can be further strengthened.

The current model assumes monthly performance reviews and payments. It may be worth examining the extent to which the values of the indicators can change in such a short period of time. There is also a need to determine the frequency and criteria for revision of indicators and targets.

There are currently no electronic records in primary care or hospitals, and registers of chronic patients do not exist. All data on the 22 indicators is therefore collected manually in the facilities. The aggregate information is entered monthly into the CNAM electronic module. The process does not preclude duplication of information and requires additional administrative time to obtain, verify and validate the data both at primary care level and in CNAM. At the current stage, it may make sense to continue to monitor the established indicators within the internal process of quality improvement but reduce the number of indicators that are accepted for payment within the pay-for-performance scheme.

Experience from other countries indicates that establishing a registry of chronic patients and maintaining electronic registers in pay for performance schemes can be very helpful in expanding coverage and is a strong incentive for the development of information systems at the primary health care level. CNAM could consider including such indicators into the pay-for-performance scheme. This would require the creation of standardized national registers

Feedback indicated that primary health care providers often do not understand the outpatient drug programme. CNAM presents the providers with a list of drugs and the total amount of compensation, but the providers do not fully understand the criteria used for setting the amount of compensation or how many prescriptions they can write. There are also no clear requirements for the management of chronic disease registers and monitoring of prescriptions, and the population generally does not understand how co-payments work.

In addition to financial incentives, creating a monitoring system for primary health care, using the existing information systems, may be considered. The discharged (treated) patient database could be an effective tool for monitoring and indirect evaluation of performance, with follow-on management solutions to improve the efficiency of primary care.

### *Hospitals*

**Expenditure on hospital care accounts for 50% of the total health budget. A system of co-payments is in place that provides incentives for patients to go first to a primary health care provider rather than directly to a hospital.** The transition from input-based to output-based financing mechanisms has included the introduction of a diagnosis-related group (DRG) system for hospital payment.

The DRG system is still under development and several opportunities exist to increase the analytical value of the information in the DRG database, including for NCD control. The DRG database has personalized information for each treated patient, including standard information about the patient (sex, age, address, status, etc.) and standard clinical and statistical information (diagnosis, type of surgery, treatment outcome, etc.).

It will be important to continue to develop the DRG system, including defining development phases and criteria for each phase, and to introduce a system to monitor hospital performance.

There may also be a need to review and possibly revise the approved tariffs for speciality outpatient, diagnostic and hospital care for the non-insured population, analysing how the established tariffs reflect the actual cost of health care (or reimbursement rates paid by CNAM). If the established tariffs for non-insured patients are lower than those under the mandatory health insurance, the population will obviously see more advantage in paying directly for services rather than buying a health insurance policy.

**There appear to be limited direct incentives to strengthen the public health and demand side for healthier lifestyles, including reducing tobacco and alcohol use and improving diet.** Currently there are limited resources for population-based initiatives. Both CNAM and the Ministry of Health have plans for work in this area but there is no common vision and priorities are not coordinated, so the work is rather fragmented. As mentioned earlier, there are no specific incentives to promote attendance at diabetes and hypertension schools.

### 3.9 Integrating evidence into practice

*Over the past 30 years, a number of studies have demonstrated that physicians' patterns of practice vary greatly. Many physicians do not follow evidence-based guidelines for clinical practice, including for key NCDs. Strengthening evidence-based medicine is therefore an important health system challenge for NCD control.*

**The Republic of Moldova has made good progress in integrating evidence-based recommendations on priority NCDs into practice.** This has been done through the development of evidence-based clinical practice guidelines, followed by a multipronged implementation scheme, which includes routine integration of guidelines into undergraduate and postgraduate curricula, and use of implementation indicators to promote internal audits and links to pay-for-performance schemes (see also section 4).

The Unit of Health Services Performance and Quality within the Ministry of Health takes the lead in this. The Unit aims to improve the quality of health care through standardization of provided services, coordination and approval of evaluation and accreditation standards, and ensuring patient safety standards. The Unit may play an important role in the integration of evidence into practice in future, but currently has very limited capacities (only two staff members) and needs to be strengthened.

**Interviews with physician educators suggest that the quality of training in evidence-based medicine (EBM) at undergraduate level could be improved,** as the majority of medical school graduates have only a limited understanding of basic biostatistics, study design, and evidence grading methods. This will require a great deal of effort beyond simply introducing a course on biostatistics. EBM must become the language of clinical educators throughout training.

A strategic decision was made to adapt international clinical guidelines as abbreviated clinical protocols. This certainly has advantages, but does not familiarize practicing clinicians with clinical recommendations that are graded and linked to evidence that is also stratified by level or strength. Using a strict, comprehensive clinical guideline development methodology, such as the Appraisal of Guidelines for Research and Evaluation (AGREE) Instrument (<http://www.agreetrust.org/>), would ensure that guideline developers openly state any potential conflict of interest, conduct a balanced assessment of available literature, invite key stakeholders to be part of the guideline development team, etc.

**An evidence-based medicine approach should also be extended to the development of policies affecting service delivery, such as the content of Ministry of Health orders, pay-for-performance schemes, and policies on reimbursement of medicines.**

### 3.10 Addressing human resource challenges

*Management of human resources in the health sector, including recruitment and retention of health workers, their education, geographical distribution and skill mix, is an important health system feature influencing NCD control.*

**The Republic of Moldova faces human resource problems that are common to many countries, including a lack of skilled staff in rural areas and emigration of health care workers that is outpacing the inflow of trained health workers.** In 2008, of 554 medical

school graduates, only 116 found employment in the health sector and, of these, only six in rural areas.<sup>8</sup> According to a recent study,<sup>7</sup> the total number of physicians decreased from 16 000 to 10 000 between 1990 and 2010, a reduction of almost 40%. The ratio of retrained to fully trained family doctors is still very high, with findings from field visits indicating that up to 80% of family doctors in some primary health care centres are former internists (“therapists”) and paediatricians who have gone through a 4–6 month retraining. In addition, the health care workforce is ageing—the average age of family doctors is 49 years.<sup>12</sup> Encouragingly, many medical school graduates seem to be choosing family medicine, with a full class of over 70 residents this year.

Besides the numbers and distribution of health workers, it is important that health worker’s knowledge and competencies are well correlated with health system needs and desired models of care. **Given the shortage of specialists in rural areas, it is essential that family doctors are trained to diagnose and manage patients with common NCDs, including type 2 diabetes and asthma.** In addition, family doctors should be capable of managing asymptomatic severe hypertension, and initiating multidrug therapy for primary prevention in patients at very high risk of CVD complications and for secondary prevention after acute myocardial infarction.

**Taking into account projections that the number of family doctors will decrease further, it is essential to consider strengthening the knowledge and skills of mid-level providers.** There are user-friendly, algorithm-based protocols for diagnosis and management of hypertension that would be appropriate for use by feldshers and nurses.

A joint World Bank/WHO assessment of human resources for health in the Republic of Moldova will be published later this year and should be valuable in informing further policy decisions.

### 3.11 Access to quality medicines for NCDs

*An important health system feature for NCD control is access to quality medicines. Patients with chronic conditions have to take the appropriate medicines on a regular basis and often for their entire life. This requires the presence of well-functioning health and supply systems, rational selection, prescribing, dispensing and use, affordable prices and sustainable financing<sup>13</sup>.*

**The Moldovan pharmaceutical system has several positive features but also some challenges.** Positive factors include the introduction in 2005 of a list of specific drugs that are reimbursed, a very high proportion of generic drugs registered and the introduction of good manufacturing practices (GMP). Challenges include high out-of-pocket payments for medicines, suboptimal availability of essential medicines, irrational prescribing and dispensing, not always clear and not always evidence-based criteria for including drugs in the reimbursement list. Unless these challenges are addressed, particularly the issue of rational prescribing of medicines, it will be difficult to improve access to quality medicines for patients.

**In 2005, one year after the introduction of national public health insurance, the first reimbursement list for outpatient drugs was introduced.** The list currently contains a number of drugs used in NCD, including 17 drugs for cardiovascular conditions, seven drugs for diabetes (including three human insulins), six drugs for respiratory conditions and one immunomodulating drug. All cancer drugs are delivered in hospital and are therefore not included in the outpatient reimbursement list. In 2011, 32 drugs for cancer treatment were procured for inpatient use in 2012<sup>d</sup>.

**There is a very high percentage of generic (both branded<sup>e,14,15</sup> and non-branded generic) drugs registered in the Republic of Moldova (93-94% of all drugs registered in 2011).** Indeed, a number of branded drugs are not even registered if there is a generic alternative available. Prescribing using international non-proprietary names (INNs)<sup>f</sup> was introduced in late 2012, which should, in theory, help increase the proportion of non-generic drugs vs. branded generic and

<sup>d</sup> Based on analysis of national tender data

<sup>e</sup> A branded generic is a generic version of the branded originator produced by the manufacturer of the originator product<sup>14</sup>. The commercial distinction between branded and unbranded generic product is that the former aims to create brand awareness and, possibly, attract a price premium<sup>15</sup>.

<sup>f</sup> Also called generic prescribing

branded originator dispensed and reduce drug spending for both CNAM and patients. In practice, doctors often give patients a second piece of paper with the commercial name of the drug they should request at the pharmacy thus undermining the purpose of introducing INN prescribing. As part of recent reforms in the public pharmaceutical sector, public procurement of insulin was moved from a vertical programme to the reimbursement list in May 2013 and compliance with GMP has been made a requirement to obtain public reimbursement (see section 4).

**There is limited evidence on rational prescribing, dispensing and use of medicines.** One study<sup>9</sup> on rational prescribing found that prescribing of essential medicines increased from 58.2% in 2004 to 65.2% in 2012<sup>16</sup>. At the same time, polypharmacy, defined as more than three drugs per prescription, increased during the same time period from 4.5% to 8.5%<sup>16</sup>. There are no studies on dispensing practices. However, the presence of financial disincentives for pharmacies to dispense the lowest cost generic drug, their profits are based on fixed margins of drugs' prices, and to over-dispense in the case of minor ailments (e.g. seasonal flu), suggest that this is an area requiring attention. Household budget surveys have documented a decrease in the proportion of over-the-counter medicines consumed (from 45.2% in 2010 to 31.4% in 2012) and an increase in consumption of prescription medicines (from 52.0% in 2008 to 68.6% in 2012). This suggests that people are increasingly seeking professional advice rather than relying on self-treatment, thereby potentially reducing the irrational use of medicines (if doctors follow good prescribing practices, which, however, does not seem to be the case).

One possible reason for the increase in seeking a doctor's advice could be better information about drug reimbursement (for which a prescription is needed), which increased from 69.9% in 2008 to 77.2% in 2012<sup>17</sup>. In 2008, people living in urban areas were better informed regarding compensated medicines (74.2%) than those living in rural areas (66.7%)<sup>17</sup>.

Overall drug consumption decreased by 11.4% points<sup>h</sup> between 2008 and 2012<sup>17</sup>, however because of lack of data on rational vs. irrational use it is not possible to draw definitive conclusions whether this was a result of a decrease in irrational drug use or decreased access. Increased public-sector reimbursement for medicines between 2008 and 2012 makes it unlikely that this decrease in consumption was due to reduced access, but does not exclude it.

There is strong anecdotal evidence that doctors' prescribing behaviour is heavily influenced by pharmaceutical sales representatives. However, there are limited efforts to improve rational selection, prescribing and use of medicines.

#### *Out-of-pocket payments for medicines*

**Despite the introduction of national health insurance covering inpatient medicines and a drug reimbursement list for outpatient medicines, out-of-pocket (OOP) payments on health and medicines have not decreased over time<sup>18</sup>.** In 2004, total OOP on health and medicines represented 45.7% and 21% of total health expenditure respectively<sup>10,18</sup>. While in 2012 they represented 45% and 27% respectively<sup>10,18</sup>. For outpatient medicines, overall OOP payments have not decreased probably because of the limited number of drugs reimbursed and the level of reimbursement. For inpatient medicines, consultation with national experts highlighted the following possible reasons why patients in hospital may need to buy their own medicines.

1. The payment the hospital receives from diagnostic-related groups (which are meant to cover inpatient medicines) is often not sufficient to pay for the required medicines and therefore some expensive medicine are not procured.
2. The patient may need a medicine that is not included in clinical protocols and therefore not procured. This is particularly the case for new and expensive drugs, and was confirmed by a patient with type 1 diabetes, who reported having to purchase an expensive drug (about US\$ 500) for the treatment of renal complications. Two situations are likely, in the first, the

<sup>9</sup> This study was based on analysis of prescriptions from a small non-randomised sample of pharmacies. This study did not include drugs part of the reimbursement list because by law they need to be prescribed one drug per prescription. Despite limitations in the methods, this study is the only available evidence to date and sheds some light on prescribing practices.

<sup>h</sup> Survey participants were asked whether they consumed any medicines in the four weeks preceding the survey. In 2008, 44.1% of the survey participants reported having consumed medicines at least once while in 2012 this figure went down to 32.7%.

drug is needed but not procured because expensive, in the second case the new and more expensive drug is not really needed, a cheaper older generic drug could achieve the same result, but because of influence from industry, doctors may still recommend this drug.

3. Stock-outs when medicines supply agreements are signed with winning bidders with major delays
4. Medicines available in the hospital pharmacy may have low effectiveness. This occurs only in a minority of cases but such cases were reported.

This is supported by evidence from a national survey in 2011 reporting that 52.5% of the patients interviewed received all the medicines they needed at the hospital, while 16.9% had to buy them and 29.6% received only some of them and had to buy remain ones<sup>19</sup>.

#### *Availability of medicines in the public and private sector*

A pricing and availability survey<sup>20</sup> in 2011 found that the average availability of a basket of 19 NCD drugs was highest for lowest-cost generic drugs in the private sector (66%, n[sample size]=19) and lowest for branded drugs in the public sector (22%, n=6 because only six of the 19 medicines had a brand drug registered in the country). **Since all the drugs were out of patent, the greater availability of lowest-cost generic drugs and the low availability of branded drugs is a positive finding.** Availability was higher in the private sector than in the public sector for all drug types (29% vs. 22% for branded drugs, 55% vs. 50% for the most-sold generics, 66% vs. 61% for the lowest-cost generics).

For all drugs (NCD and non-NCD), the average availability was highest in the private sector in urban areas (72% for lowest-cost generics, 62% for most-sold generics and 38% for branded medicines) and lowest in the public sector in rural areas (31% for lowest-cost generics, 21% for most-sold generics and 5% for branded medicines)<sup>20</sup>.

**Insulin shortages have been reported by both patient representatives and doctors.** Possible reasons include incomplete data on the number of patients requiring insulin and distribution problems; in particular, lack of an effective system to monitor levels of stocks. The high number of tests required by the quality control system can also sometimes cause delays in supply<sup>21</sup>. The change in the procurement of insulin from a national tender programme to purchase by pharmacies is expected to help preventing stock-outs due to better forecasting.

#### *Affordability*

Using methodology developed by WHO and Health Action International (HAI)<sup>22</sup>, the affordability of treating a selection of chronic conditions was assessed by comparing the median cost of medicine treatment using standard regimens with the minimum daily wage of public sector workers (20 Lei or approximately US\$ 1.70). Costs were adjusted to take account of the percentage reimbursed by CNAM, if applicable. Affordability is expressed as the number of days a person on the minimum wage would need to work to purchase a month's supply of medicine to treat a chronic condition. Medicines for chronic diseases costing more than one day of wages for a 30-day supply are generally considered unaffordable<sup>22</sup>.

Based on data from the WHO/HAI survey in 2011, **results suggest that verapamil, simvastatin and hydrochlorothiazide are currently unaffordable, requiring at least 4.59, 6.5 and 1.21 days of the minimum wage to purchase a month of treatment.** This presents an important barrier to CVD control. A more extended analysis of affordability by income quintiles is presented in Appendix 4.

#### *Reimbursement list*

**The criteria for inclusion of medicines in the reimbursement list are not fully clear and evidence-based.** The national essential medicines list (EML) is currently being updated (the current list was just copied from the model WHO list without adaptation to the country epidemiological

<sup>i</sup> For individual medicines, availability refers to the percentage (%) of outlets where an individual medicine product was found. For a basket of medicines, availability refers to the mean (average) % availability across a basket of medicines.

profile). This is an important step in the right direction and the EML should be used as a basis for inclusion in the reimbursement list and linked with national treatment protocols. The lack of clear and written evidence-based criteria for inclusion in the list (which is supposed to be based on burden of disease and need) has repercussions on the drugs included, some of which do not have a strong evidence base. Examples include ambroxol, repaglinide (rather than the older and cheaper oral sulfonylureas which are equally effective except in patients with poor renal function) and salbutamol syrup (which is less effective than a metered dose inhaler with spacer/mask for bronchodilation and has significantly more side-effects). Some basic NCD drugs with a strong evidence base are missing from the reimbursement list; examples are statins, ipratropium bromide inhaler and furosemide (removed in 2013). Further, no clear justification has been found for the reduction in reimbursement of a number of drugs in the latest list (May 2013) and the withdrawal of various drugs previously on the list.

**There seem to be rather limited initiatives to reduce outpatient drug prices. The existing price monitoring system monitors a sample of most sold drugs<sup>j</sup>. However, it is unclear the extent to which this data is used to inform policy.** There is a need to revise price regulations for reimbursed medicines and to introduce new measures to obtain better value for money. These could include the introduction of a clawback system<sup>k,23,24</sup> differential mark-ups and a tendering system for selected outpatient drugs<sup>25</sup>. Currently, CNAM does not benefit of discounts pharmacists receive from wholesalers. The introduction of a clawback system would allow CNAM to recoup some of the savings accrued along the supply chain due to off price list discount. As part of a differential mark-up system, lower mark-ups could be charged for drugs reimbursed by CNAM. Implementation of regressive mark-ups<sup>l</sup> could also be considered. Currently, pharmacies are paid a fixed mark-up for each drug package dispensed, which provides an incentive to dispense more expensive drugs. Introduction of regressive mark-up structure and a dispensing fee, which remunerates pharmacists for their services rather than the price of drug dispensed, could help generate savings and address some of the problems relating to irrational drug use. Introduction of an incentive system to encourage dispensing of non-branded generics could be also considered. A tendering system is in place for inpatient medicines but not for outpatients ones. Given the small size of the market, it would be worth trying whether using a tendering system for the procurement of selected reimbursed outpatient drugs associated with high levels of consumption, can lower prices. This would benefit not only CNAM but also patients in terms of lower copayments (patients pay a certain fixed percentage of a maximum reimbursable price).

## 3.12 Strengthening health systems management

*A number of health system challenges (medicine supply issues, poor information systems, lack of coordination among providers) reflect the fact that, at both the institutional and the system level, many health systems require better management.*

In the Republic of Moldova outside Chisinau, health facility administrators are responsible to local government, which runs district hospitals and submits statistical reports to the National Centre of Health Management. Directors of health facilities are selected on a competitive basis by a commission at the Ministry of Health in agreement with local authorities. Traditionally, the management team in a health facility includes a deputy director for clinical work, heads of departments and administrative staff. Staff for these positions are selected at the facility level. Directors of health facilities must attend a general management course before assuming their official duties. The rest of the management team undergoes management training sessions in the framework of postgraduate training courses. Management training is generally provided by the State University of Medicine and Pharmacy.

Health facilities have a high level of autonomy. The facilities have financial independence and their own bank account, and manage their own budget within limits established by a contract

<sup>j</sup> This list includes 50 most sold medicines in 2005, 57% of these medicines are EML (Based on the 18th WHO EML, April 2013)

<sup>k</sup> A clawback system allows health payers to recoup some of the savings accrued along the supply chain due to off price list discount.

<sup>l</sup> A tiered mark-up structure where more expensive drugs are associated with lower mark-ups.



with CNAM (for example, no more than 60% of the budget can be used for salaries). Managers of health facilities have the right to hire and fire staff, set the rules, assesses staff performance and implement incentive payments. Financial management is traditionally carried out by the accounting office; the primary focus is on accounting, spending and interaction with the financial authorities, rather than on strategic planning, analysis of costs or efficiencies. Cost accounting is not part of the usual management process at facility level. The procedure for providing health care is established in accordance with the profile of the facility. Clinical and management personnel develop specific procedures to implement clinical practice guidelines and monitor performance indicators, as specified by the contract (number of visits, hospitalizations, etc.), but these actions are not integrated in a single concept or quality management process.

**There are no clear performance criteria by which health facility administrators are routinely assessed (management of managers) apart from the facility accreditation, which is done once every five years.** Health statistics are published annually by the National Centre of Health Management, which allows certain health outcomes to be compared at district level; however, the health statistics are not broken down to the facility level. Health administrators do not work towards clinical benchmarks and are not responsible for drawing up action plans to improve performance indicators.

**Information systems are not generally used for management decision-making. In most cases, even where electronic systems or registers are in place, the data from these systems are used for external reporting rather than for internal management.** Internal quality audits are now routinely conducted in primary health care facilities in order to submit pay-for-performance data; however, beyond this, it is not common for facilities to set goals based on internal performance assessments or to track their own performance indicators (either for content or organization of services). Many facilities have systems in place for assessing patient satisfaction, but they are usually passive (receiving patient complaints) rather than active. To a large extent, the success of facilities depends on the personal qualities of the directors and management staff, and not on the established systems and procedures.

### 3.13 Creating adequate information solutions

*Many national health systems have weak information systems, which is both a cause and a consequence of managerial weakness. This impedes performance management and monitoring at all levels. Information is needed on both quality of care and costs.*

The reforms currently under way in the health system of the Republic of Moldova necessitate new standards for the quality, reliability and efficiency of medical information. The Ministry of Health should intensify work to create a unified health information system linking collection, analysis, use and dissemination of data, facilitated by a modern e-health system.

**The different levels of the health system currently use a variety of local information systems that are not integrated and do not have uniform standards.** In many cases, for each specific task (reporting form, indicators, etc.) a separate software product is used that is not integrated with other modules of the information system. As a result, each local system performs specific tasks for the health facility, health authority or CNAM. However, the full range of available clinical, statistical and financial information is not used for management decision-making at every level of the health system.

Positive examples of information systems in the country are the database of medical emergencies (ambulance calls) and the system of electronic registration of discharged patients treated in the hospitals, which was implemented throughout the country in 2013. So far, electronic forms are rarely used for registration and management of patients. The Ministry of Health and CNAM plan to address these issues in 2014, by introducing information systems in primary health care facilities. Another positive development is the introduction of a national system of identity numbers covering the whole population, which provides an important basis for strengthening information systems. Plans are also in place to strengthen e-health and Internet coverage is high.

The main problems of the existing information system, as a whole and specifically for NCD, are as follows.

- There is fragmentation and duplication of information in local systems, which limit the use of the information system for strategic planning, health care purchasing, and monitoring of access to and quality of health services, including for NCDs. The administrative costs of maintaining the information system as a whole are also higher than necessary.
- There is limited electronic recording of information or interconnectivity.
- The standard ambulatory health record does not contain health summaries or flow sheets, which would contribute to the assessment of NCD risk factors. Time-consuming searches through visit notes are required to find essential information, such as smoking status, alcohol use, screening results, and even blood pressure. Many facilities have designed their own flow sheets to summarize the risk factors required for pay-for-performance reporting and this is likely to have a positive effect on the management of chronic NCDs. Disease-specific flow sheets, which serve as reminders of periodic screening requirements and summaries of essential findings, are also not used.

### **3.14 Overcoming resistance to change**

*In all areas, overcoming obstacles requires changes in the way health care organizations function. All organizations are resistant to change and the management of change is therefore an important challenge for the health system in NCD prevention and control.*

The Government of the Republic of Moldova has demonstrated commitment and support to health care reform. Funding has been kept at a stable level, important health finance and service delivery reforms have been carried out, primary health care has been given priority, efficiency measures have been introduced in the pharmaceutical sector and, most recently, national programmes on tobacco and alcohol control have been adopted.

Given the difficult political situation in the country and possible changes in the law on the state budget and local finance, which may lead to changes in the level of funding, the Ministry of Health and CNAM need to develop proposals for continued prioritization of health care financing and to carry out advocacy at all levels.

For NCD control, it will be essential to strengthen public health and intersectoral cooperation in implementing the national tobacco and alcohol control programmes. Specific policies and interventions are also needed to improve diet, increase physical activity, reduce salt intake, replace trans-fats with polyunsaturated fat, and promote public awareness about diet and physical activities. Strengthening intersectoral cooperation is probably one of the most important area for change management and the Government needs to consider ways to address this.

### **3.15 Ensuring access to care and reducing financial burden**

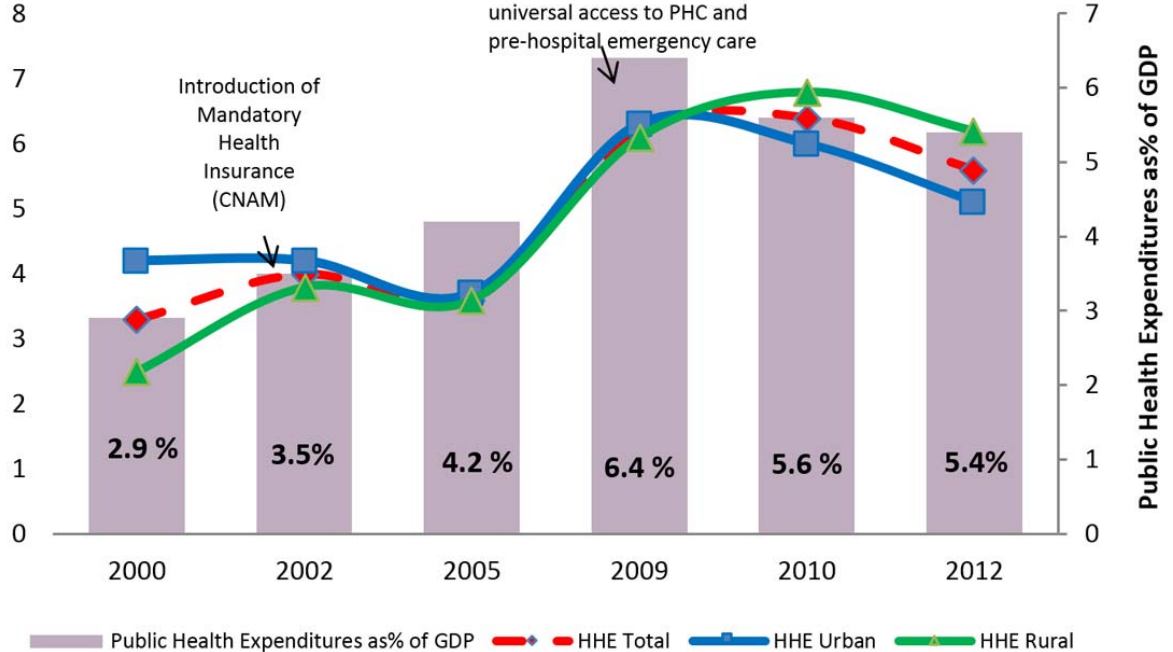
The Moldovan National Bureau of Statistics (NBS) conducts regular household budget surveys (HBS). On the basis of the survey data, NBS and the Ministry of Health, with support from the World Bank, prepare reports on "Access of the population to the health services". The data allow analysis of barriers to access to care, quality of care, and financial burden for patients, disaggregated by socioeconomic status and sex. The survey data also provide general information on prevalence of chronic diseases, including NCD. The latest report, from 2012, includes data on tobacco consumption, but no data on other NCD risk factors, such as obesity, alcohol use or salt intake. A number of additional studies published in recent years provide complementary information on access to services, barriers and financial burden for patients.

**Information from the Ministry of Health and recently published studies indicate that the availability of health services is good in general, with some geographical and urban/rural inequities.** Most people have physical access to primary health care facilities within 5 km and less than one hour's travel away. There are some issues related to physical access of the rural population to laboratory and diagnostic tests, pharmaceuticals in rural pharmacies and a shortage of primary care physicians in rural areas, with a continuing oversupply of specialists in Chisinau.

**Overall, financial access improved with the introduction of legislation on health insurance in 2002, which became fully operational in 2004.** Health expenditure as a percentage of the state budget is stable and at an appropriate level; coverage of basic health services, regardless of health insurance, was expanded in 2009, and additional outpatient drug benefits have been introduced.

Although good progress has been made towards more equal access to care, household expenditure on health remains comparatively high; in 2012, health was the fourth-highest household expenditure item at 6%, (Fig 12) after food (43%), household maintenance (19%) and clothes and footwear (11%).

**Fig. 12. Public and household expenditure on health, 2000-2012**



Data source: NBS <http://www.statistica.md/category.php?l=en&idc=198&>

Table 7 summarizes the level of OOP payments in the Republic of Moldova. About 50% of all expenditure on health is based on private expenditure and about 80% of private expenditure is covered by the population. Spending on drugs is the main driver of OOP expenditure.

**A recent report<sup>8</sup> noted that, while financial protection has improved in the past decade, serious challenges persist.** Out-of-pocket and informal payments are almost universal and have not decreased following the introduction of health insurance. A cross-country comparative study in 2010 reported that almost all patients (96.3%) had to make OOP payments in various forms.<sup>26</sup> The size of the OOP payments was in direct relationship to a household's financial capacity – those in the highest income quintile spent, on average, 8.3 times more on health than those in the lowest quintile. Most OOP payments are for pharmaceuticals, as public funding covers only 28% of expenditure in this category.

**Table 7. Average health expenditure covered directly by population, by area of residence, 2008–2012**

	2008			2010			2012		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Total monthly health expenditure per person (lei)	94.1	100.2	89.6	93.6	100.2	89.0	107.7	103.3	111.0
Distribution (%)									
Primary health care	15.8	19.4	12.9	14.1	16.3	12.4	19.8	19.8	19.8
Drug procurement	64.4	68.3	61.2	63.6	65.3	62.4	62.0	60.8	62.8
Hospital care	9.9	7.5	11.8	13.7	13.1	14.2	10.6	14.6	7.8
Transport	9.9	4.8	14.1	8.6	5.4	11.1	7.7	4.8	9.7

Source: National Bureau of Statistics.

## 4. Innovations and good practises

### 4.1 Implementation of national clinical protocols

Since 2008, 147 clinical protocols have been developed in the Republic of Moldova, including on priority NCDs, such as hypertension, diabetes, hyperlipidaemia, asthma, and COPD. The Unit of Health Services Performance and Quality within the Ministry of Health is responsible for coordinating the prioritization of topics, creation of working groups, and development of the protocols. A national methodology has been approved for developing clinical protocols. While other former Soviet countries are also developing national clinical protocols, the Republic of Moldova is a leader in establishing a process to facilitate their implementation, with the following features.

1. Mandatory inclusion of implementation indicators in the clinical protocol. These indicators are already being used by national quality monitoring teams to assess implementation of the guidelines at the health facility level. The indicators can also be used by CNAM for their external quality assurance reviews and incorporated into pay-for-performance schemes. The indicators can also be used for internal audits as part of quality improvement, although such audits are not routinely conducted in Moldovan health facilities.
2. Mandatory inclusion of patient education, information and communication materials. Educating patients and the general population on the services they should receive for different conditions is one way to promote implementation of clinical guidelines, and has been shown to be particularly effective in improving screening rates. In addition, publishing patient education materials in clinical guidelines can facilitate and standardize physician- or nurse-directed counselling of patients.
3. Linking of pay-for-performance schemes to health priorities and clinical protocols. Although implementation started only recently, health care managers spoke optimistically about an increase in provider motivation to adhere to standards as a result of the current pay-for-performance scheme. Linking pay-for-performance to indicators included in clinical protocols and which are, in turn, linked to evidence-based standards of care and desired outcomes is a progressive initiative.

<sup>m</sup> External/International reference pricing is known as manufacturer price registration in the Republic Moldova.

## 4.2. Innovations in the pharmaceutical sector

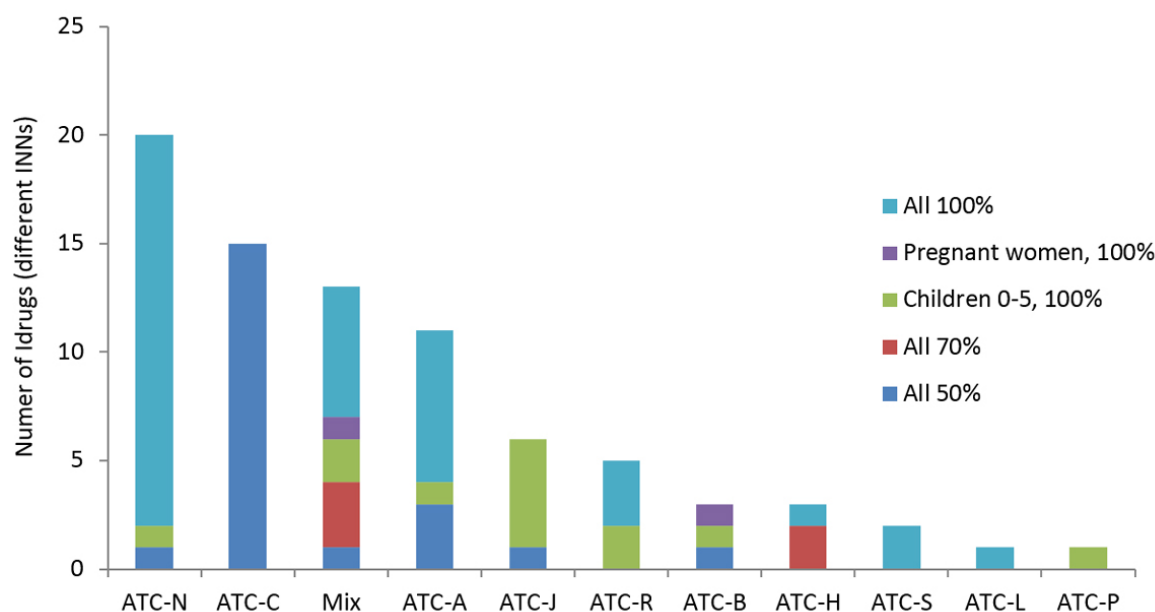
There have been a number of positive developments in the Moldovan pharmaceutical sector over the past decade. These include: increased funding for public reimbursement of outpatient drugs (2004–12); introduction of external reference pricing<sup>m</sup> (2010); inclusion of insulin in the list of reimbursed drugs (2013); increased availability of drugs to treat cancer (2007–12); priority to reimbursement of drugs produced according to GMP (2013); and introduction of mandatory generic prescribing (2012).

### Outpatient sector

A list of reimbursed drugs was first introduced in 2005 and included eight drugs. All insured patients are eligible for coverage. The list was updated in 2008, 2009, 2010, 2011 and 2013. The current list contains 81 drugs and covers more than ten therapeutic areas (at ATC-1 level), as shown in Fig. 13.

Further, all Moldovan citizens are entitled to free access to anti-diabetes, anticonvulsant and psychotropic drugs (included in the reimbursement list but reimbursed for everyone, not just patients insured by CNAM). There are also various national programmes, co-funded by donors and the state, for the procurement of drugs for management of human immunodeficiency virus (HIV) infection, tuberculosis, some rare diseases (e.g. myasthenia gravis, cystic fibrosis) and for palliative care, to which every citizen has access.

**Fig. 13. Number of drugs reimbursed, by ATC group, reimbursement level and beneficiaries, 2013**



Notes: Anatomical therapeutic chemical (ATC) group: ATC-A: alimentary tract and metabolism; ATC-B: blood and blood-forming organs; ATC-C: cardiovascular system; ATC-H: systemic hormonal preparations, excluding sex hormones and insulins; ATC-J: anti-infectives for systemic use; ATC-L: antineoplastic and immuno-modulating agents; ATC-N: nervous system; ATC-P: antiparasitic products, insecticides and repellants; ATC-R: respiratory system; ATC-S: sensory organs; mix: different ATC-groups.

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**Table 8. Available budget and actual expenditure (thousands Lei) on national health insurance and outpatient medicines**

	2004	2006	2008	2010	2012
<b>CNAM</b>					
CNAM available budget	1 070 680	1 527 712	2 693 562	3 434 400	3 927 715*
Actual expenditure	1 070 680	1 527 712	2 693 562	3 434 400	3 984 715
<b>Outpatient medicines</b>					
Available budget for outpatient medicines	NA	36 600	60 404	116 850	162 600
Actual expenditure	7404 (2005)	23 815	55 291	116 849	166 244

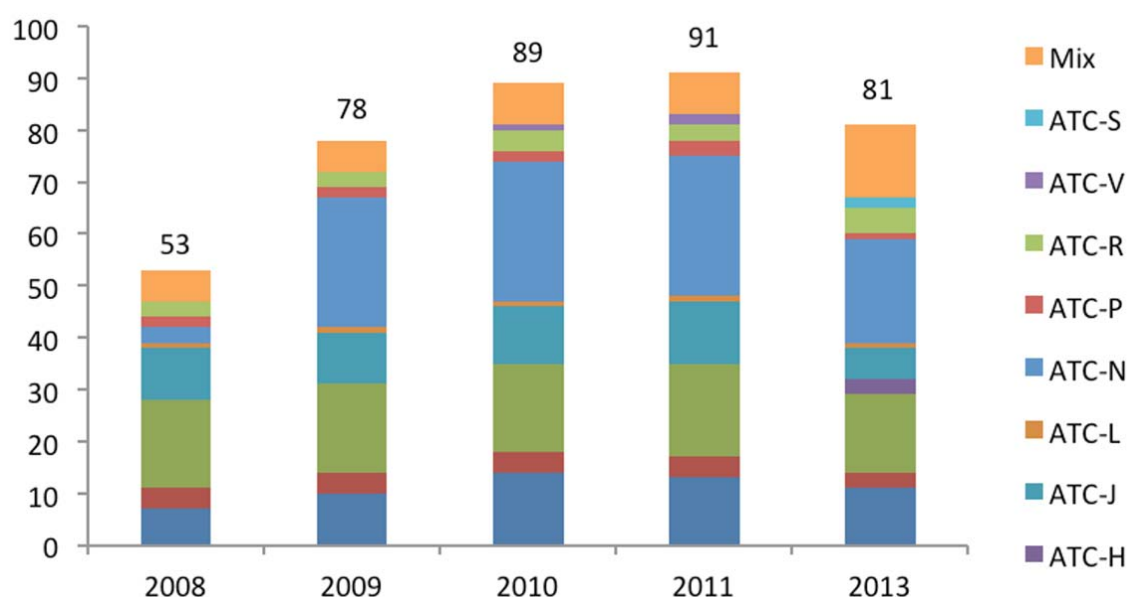
NA: not available.

\*The planned budget was subsequently increased to cover the additional spending.

Source: CNAM.

The increased budget has translated into a greater number of drugs being included in the reimbursement list over time (Fig. 14), an increased number of reimbursed prescriptions, and an increase in the proportion of total prescription value reimbursed per prescription.

**Fig. 14. Drugs included in the reimbursement list by therapeutic area, 2008-13**



Notes: Anatomical therapeutic chemical (ATC) group: ATC-A: alimentary tract and metabolism; ATC-B: blood and blood-forming organs; ATC-C: cardiovascular system; ATC-H: systemic hormonal preparations, excluding sex hormones and insulins; ATC-J: anti-infectives for systemic use; ATC-L: antineoplastic and immuno-modulating agents; ATC-N: nervous system; ATC-P: antiparasitic products, insecticides and repellants; ATC-R: respiratory system; ATC-S: sensory organs; mix: different ATC-groups.

Between 2007 and 2011, the number of reimbursed prescriptions<sup>n</sup> nearly doubled from 1 644 088 to 3 212 714<sup>27</sup>. For reimbursed medicines, by law, one prescription can only list one drug suggesting that there was an important increase in the number of medicines reimbursed. The average cost per prescription increased from 47.1 Lei in 2007 to 68.6 Lei in 2011<sup>27</sup>. In parallel, the average reimbursement per prescription increased from 24.9 Lei (52.9% of the prescription value) to 47.8 Lei (69.7% of the prescription value) between 2007 and 2011<sup>27</sup>.

<sup>n</sup> Paper prescriptions written by doctors.

Until May 2013 insulin was procured through a national tender programme. With the release of the new reimbursement list, the most commonly prescribed types of insulin<sup>o</sup> will be procured by pharmacies and reimbursed by CNAM (Government funding will be transferred to CNAM).<sup>p</sup> This move – from a national tender programme to decentralized procurement by pharmacies – is expected to have several positive effects: more reliable supply, as pharmacies will be able to adjust their order on the basis of what they dispense; increased choice of insulin types; greater availability of insulin across the country; and shorter travel times for patients (insulin was previously available only in the main referral primary health care centre in each rayon). However, there are also some potential threats, such as the prescribing of newer, more expensive – but not more effective – types of branded insulin.

#### *Inpatient sector*

Between 2007 and 2012, the number of both anti-neoplastic drugs and doses procured increased, meaning that a wider selection of therapies and greater quantity of medicines were available to treat cancer patients. This was possible as a result of increased overall spending on inpatient medicines over time. Between 2004 and 2012, expenditure on inpatient medicines increased substantially from 94 234 000 Lei (US\$ 7 898 910) to 357 766 000 Lei (US\$ 29 746 902).<sup>q</sup>

#### *Regulation*

Until 2013 compliance with GMP was not enforced. Since the release of the latest reimbursement list, medicines registered in the European Union, Australia, Canada, Japan or the USA – and therefore compliant with GMP – are given preferred supplier status. This is expected to provide a strong incentive to the local manufacturing industry to improve their manufacturing practices according to internationally accepted standards of good quality. For drugs registered in the Republic of Moldova, for which there is no equivalent available from one of these countries, preference is given to manufacturers with national GMP certification. For inpatient medicines, all products tendered should comply with GMP.<sup>r</sup>

#### *Prescribing*

After a previous failed attempt to introduce generic prescribing, this was finally introduced in late 2012. All doctors are now required to use generic (international nonproprietary) names when prescribing. Audits are conducted at pharmacies to check whether registered prescriptions used generic names. At this stage, it is only possible to check prescriptions for reimbursed medicines. However, the country is planning to introduce e-prescribing, which will facilitate surveillance of prescribing habits for all prescription medicines.

## **4.3 Innovations in strengthening palliative care policy**

Since 2008, the Republic of Moldova has worked towards implementation of a comprehensive policy and regulatory framework for palliative care. Although the Mandatory Health Insurance Programme has included palliative care since 2007 (Decree number 1387 of 10 December 2007), the provision and funding of palliative care was previously fragmented, focused mainly on programmes addressing people living with HIV and cancer patients, and mostly funded by donors.

In 2008, the Ministry of Health approved a paper entitled *Concept of developing palliative care services in the Republic of Moldova*. The paper defines palliative care as an integral part of the health system and an inalienable element of the citizens' right to health care.

In 2009, the Ministry of Health formally approved procedures and rules for the organization of palliative care, including the principles and types of palliative care (hospice care, home care, mobile care teams, departments in hospitals and outpatient clinics), as well as the criteria for

<sup>o</sup> Only three type of insulin (Insulinum glarginum 100 UI/ml 3 ml, Insulinum detemirum 100 UI/ml 3 ml, Insulinum aspartum 100 UI/ml 3 ml) still will be purchased via national tender.

<sup>p</sup> All patients, with or without insurance, will still have access to insulin.

<sup>q</sup> Based on data provided by CNAM.

<sup>r</sup> It is not specified whether compliance is needed with national GMP or those of WHO, the European Medicines Agency (EMA) or the Food and Drug Agency of the USA (FDA), except for psychotropic and tuberculosis medicines, for which GMP certification according to either WHO, EMA or FDA is required.

assessing patients and determining organizations eligible to provide palliative care, which include public and private providers.

At the end of 2010, the Ministry of Health approved national standards for palliative care. This document clearly defines the rules and procedures for the provision of palliative care services, methods and sources of financing, drug provision, coordination, and legal and ethical aspects.

As part of the national standards implementation process, the development of community and home care services was included in the Ministry of Health Activity Plan for 2011; additional regulatory acts have been approved, which determine the change in the standards for medical personnel within the palliative care programme. In addition, payment rates for palliative services have been approved, and CNAM has started to contract with governmental and nongovernmental organizations for the provision of palliative care.

In 2011, the Ministry of Health adopted a roadmap for the health sector, *Accelerating reforms: addressing the needs of the health area through investment policies 2012–2014*. This document also reflected palliative care through “revision and improvement of the payment mechanism for health services provided by community centres, rehabilitation services, palliative and social care services, etc., by applying payment mechanisms per treated case, per assisted case, per visit, etc.”

The Methodological Standards on the Use of the Unique Mandatory Health Insurance Programme for 2013, approved by the Ministry of Health in late 2012 (Nº 1239/253-A from 10 December 2012) determine the procedures for providing services, a package of services for insured persons and payment rates for home health services, including palliative care.

General information on the funding of palliative care services by CNAM since 2011 is summarized in Table 9

**Table 9. Funding of palliative services by CNAM, 2011–2013**

	Budget allocated to palliative care (Lei)	Palliative care as % of total CNAM budget	Rate per visit for home care (Lei)	Rate per bed-day in hospice (Lei)	No. of providers contracted by CNAM	No. of home visits conducted	No. of bed-days
<b>2011</b>	925.2 million	0.03	-	93 <sup>a</sup> (US\$ 8)	2	-	5747
<b>2012</b>	2358.6 million	0.06	69.30 (US\$ 6)	214.40 (US\$ 18)	4	1224 <sup>b</sup>	11 000
<b>2013 (plan)</b>	3902.5 million	0.01	69.30 (US\$ 6)	214.40 (US\$ 18)	10	18 260	12 300

<sup>a</sup> Source: Health systems in transition Republic of Moldova, 2012

<sup>b</sup> Palliative services started to be provided from 01 September 2012.

Source of data: CNAM.

At this stage, it is too early to speak about tangible improvements in the provision and quality of palliative care, because the programme is still in a very early stage of implementation. Further work may include strengthening inter-sector coordination and collaboration, and developing co-financing mechanisms (Ministry of Health, CNAM, Social Protection Fund, donors, etc.) for the respective programmes, with monitoring of implementation and evaluation of results.

It is already evident, however, that the Republic of Moldova has made excellent progress in developing a unified strategy and regulatory framework for palliative care. This provides the necessary foundations for further work on increasing access and improving the range and quality of palliative care in the country.



### *Potential lessons*

Palliative care has been adopted in many CIS countries, but without clearly defined criteria for the organization and delivery of services and without appropriate mechanisms to designate providers and define payment methods.

In many countries, the development of palliative care is driven mainly by the enthusiasm of individuals and public figures. The range of assistance is often quite limited (e.g. to patients with AIDS or cancer), and it is often practically non-existent in rural areas. Separate programmes implemented by NGOs and funded by international organizations are often more successful. Funding of these programmes from government sources is often fraught with legal and regulatory barriers, especially in the case of contracting private providers, NGOs, professional associations and the like.

The experience of the Republic of Moldova in developing a comprehensive policy and regulations for palliative care may be useful to other countries.

## **4.4 Innovations in strengthening emergency services**

In 2005, the emergency hospital in Chisinau began an important transformation to improve their capacity to respond to emergency cases. Under a project to regionalize emergency services, the hospital was assigned to serve as the coordinator for emergency services in five districts, covering a population of 560 000. The hospital operates with a contract from CNAM, which has undertaken to improve their capacity significantly. Nearly 30% of all emergency calls are related to cardiovascular disease. The Ministry of Health and the hospital management team initiated several initiatives that have dramatically improved the emergency response, ranging from implementation of clinical protocols for key diseases to the introduction of GPS technology for the ambulances.

Emergency calls come in to the dedicated call centre, which is open 24 hours a day, seven days a week. A pre-hospital triage results in only about 25% of patients, who call in, being brought to the hospital. Ambulances are equipped with tele-ECG machines with which the ambulance team can send the ECG to the emergency hospital for remote consultation. For ambulance teams that do not include a physician, the ECG can be read remotely and the emergency hospital calls the team to give instructions for treatment and processing of the patient.

The team has put in place a quality improvement mechanism to continuously monitor all emergency-related mortality in the capital and assess the intervening factors. Using the GPS technology in the ambulances, the team is able to monitor the response times (call-to-patient, call-to-hospital, etc.) by diagnosis for each ambulance, important data to help ensure that response is as rapid and effective as possible.

Scaling-up of the system to different regions of the country has started.

## 5. Policy recommendations

**The Moldovan Government has demonstrated its commitment to health system reform. In recent years, many important reforms have been implemented,** including the introduction of the national health insurance company (CNAM), adjustment of the provider payment mechanism to improve equity in health resource allocation, and provide incentives for health care providers to deliver better services. Recently a DRG system for hospital payment has been set up and this year additional incentives have been introduced through a pay-for-performance mechanism, to improve the screening and management of key conditions, including core NCDs, at primary health care level. The autonomy of providers has also been increased, primary health care has been given priority in resource allocation, and their services have been made universally available.

**Allocations to health from the state budget are among the highest in the CIS, and efficient use of funds is therefore a priority if improvements are to be made.** The pharmaceutical sector is an important area for efficiency improvement. Several important policy changes have been implemented in recent years, including increased resource allocation for outpatient drugs, requiring GMP for public reimbursement and the introduction of mandatory generic prescribing.

**Overall mortality rates in the Republic of Moldova are still comparatively high compared with other countries in the region, although they have started to fall.** There is a substantial gap in life expectancy between the Republic of Moldova and the EU countries. To close this gap, it will be essential to control the major NCDs. Both prevention and treatment are important, and action needs to be taken at both population and individual service level.

**Major gains can be made through relatively low-cost public health and primary health care interventions.** These include, among others, strengthening tobacco, alcohol, and dietary polices and their implementation, improving detection and treatment of risk factors for cardiovascular disease, including hypertension and hyperlipidaemia, strengthening clinical protocols, and improving rational prescribing practice through better drug lists and guidelines for prescribing.

Specific recommendations, based on the findings of the assessment mission, are given below.

### 5.1 Population Interventions

The starting point – and the greatest opportunity – for the Republic of Moldova to reduce mortality, both overall and from NCD, is to reduce the prevalence of major risk factors for NCDs: tobacco smoking, harmful use of alcohol, and unhealthy diet and lifestyles. Ratification of the FCTC and the recently approved national alcohol and tobacco programmes are a good start, and a series of actions may be considered to build on and strengthen these efforts. In addition, interventions to improve the management of acute conditions, such as AMI and stroke need to be strengthened.

1. Strengthen surveillance and monitoring of key parameters for all the major NCD risk factors at local and national levels and define coordination mechanisms for this. Consider developing country tailored targets for behaviour risk factors and revise indicators in line with the respective aspects of the WHO Global Action Plan for the prevention and control of noncommunicable diseases 2013-2020 including for example additional indicators, to cover areas such as excise duty tax for alcoholic beverages and cigarettes, level of restriction on sales promotion, etc.
2. Consider ways to increase resources for public health services and risk factor reduction, by ring-fencing allocations or earmarking.
3. Strengthen undergraduate, postgraduate and continuing public health education curricula for the public health workforce (to include evidence-based public health, biostatistics, epidemiology of NCDs and their risks factors, health promotion and disease prevention, public health policy development, monitoring and evaluation).

4. Strengthen coordination in the area of health lifestyles and diet and link to an action plan, monitoring and resourcing.
5. Intensify efforts to harmonize tobacco taxation policies with those of the European Union by 2025 or earlier.
6. Clarify and strengthen enforcement modalities for alcohol, tobacco and diet laws and regulation and as appropriate address needed reform in legislation.
7. Look for opportunities to learn from other countries that have made good progress in reducing risk factors, e.g. Turkey on tobacco control.
8. Increase the capacity of the National Centre of Public Health to develop effective, evidence-based materials for information, education and communication (IEC) on main NCDs risk factors and control for different target groups.
9. Strengthen mechanisms for ensuring that approved IEC materials at the various levels reflect latest evidence and best practice to reach different target groups.
10. Base NCD communication strategies on assessments of population knowledge, attitudes and practices (KAP). Key individuals from the NCPH should be trained to conduct and interpret KAP surveys, and in social marketing to maximize the effectiveness and efficiency of population education campaigns.
11. Set up a working group involving key stakeholders (e.g. Ministry of Health, CNAM, NCPH) to ensure coordination of population campaigns, including prioritization of topics, development of IEC materials, and message strategies. Given the detrimental effect of late presentation for care for AMI and stroke, population messages aimed at reducing the symptom-to-hospital time should be considered among the priorities.

## 5.2 Individual services

The most important opportunities to reduce NCD mortality through individual services lie in strengthening primary health care to better manage and treat risk factors for cardiovascular disease, and better management of acute episodes, such as heart attack and stroke.

### *Population empowerment*

1. Evaluate the efficacy of the hypertension and diabetes schools.
2. Develop a standardized curriculum for these schools, along with national IEC materials for use by participants.
3. Intensify efforts to make patients aware of new clinical guidelines and the services they should receive, including clinical targets and screening recommendations.
4. Ensure that patient schools are widely promoted and consider ways to provide incentives for participation.

### *Effective models of service delivery*

1. Accelerate the process of revising the clinical protocols for priority NCD topics (hypertension, type 2 diabetes, asthma, COPD), to remove the requirement for family doctors to refer patients to specialists for confirmation of diagnosis and routine follow-up. Remove the restriction that prevents family doctors from ordering glycosylated haemoglobin tests.
2. Make nurse check-in examinations (with measurement of blood pressure, weight, etc.) mandatory for all clinic patients. Encourage nurses to play a more active role in risk factor screening (document in chart) and individual patient counselling.
3. Shift the role of specialists away from providing care for patients with uncomplicated disease towards more involvement in supporting primary care providers in adhering to standards (audits, education) and consulting on patients with complications or difficult-to-control disease.

4. Shift responsibility for leading patient education classes (diabetes and hypertension schools) to nurses.
5. Continue efforts to strengthen palliative care, including intersectoral coordination and co-financing mechanisms (Ministry of Health, CNAM, Social Protection Fund, donors, etc.) for the palliative programmes, monitoring their implementation and evaluating results.

#### *Economies of scale and specialization*

1. Give priority to developing regionalization strategies for NCDs (management of myocardial infarction, stroke, cancer screening, and cancer treatment), taking into account issues of economies of scale and access.
2. Decentralize thrombolytic therapy for acute myocardial infarction to the district hospital level. Support rayon-level cardiologists, critical care specialists, and therapists (involved in the primary evaluation and treatment of patients with myocardial infarction) through brief (2–3 weeks) clinical mentoring followed by regular monitoring and support.
3. Establish clear referral policies for patients with stroke and AMI, including criteria for rationalization of high-cost, high-technology interventions, such as coronary artery stenting for myocardial infarction and thrombolytic therapy for stroke.
4. Establish a working group composed of oncologists, gynaecologists, and family doctors to explore alternative screening methods for cervical cancer (e.g. visual inspection with acetic acid), which may be more appropriate in the Moldovan environment, given the shortage of cytologists.

#### *Human resources*

1. Develop a strategy to increase the capacity of mid-level providers (feldshers and nurses) working in rural health facilities to take a more active role in detecting and managing low- and medium-risk patients with hypertension or diabetes, and patients with mild persistent asthma. This should involve defining the scope of services, specifying clear referral criteria for each illness, and developing straightforward, algorithm-based clinical protocols. (WHO has published clinical algorithms for managing patients with elevated CVD risk appropriate for non-physician health care providers.<sup>28</sup>) Nursing school curricula and continuing education modules should be revised accordingly to ensure that both nurses and feldshers entering the workforce and those already practising have the necessary core competencies.
2. Strengthen undergraduate, residency, and continuing medical education curricula for family doctors to ensure that they feel confident in their ability to independently detect and manage the majority of patients with noncommunicable disease.
3. Continue to explore innovative methods to recruit both family doctors and specialists to rural areas. Benefits offered in current programmes to motivate providers to work in rural areas are adequate to attract nurses, but not physicians. A detailed assessment of issues related to the high emigration rates of health care workers and the low percentage of medical school graduates entering the work force was beyond the scope of this mission, but is included in a WHO/World Bank study, which is scheduled to be published later this year and which can be used to inform policy decisions.

#### *Access to quality medicines for NCDs*

##### *A. Affordability:*

1. Improving rational selection, prescribing, dispensing and use of medicines:
  - a. Finalise the revision of the national EML based on the latest WHO EML with adaptations to the country's epidemiological profile. Use the national EML for reimbursement decisions and ensure both, the EML and the reimbursement list, are linked to evidence-based national treatment protocols.
  - b. Train existing doctors in rational prescribing but most importantly include rational prescribing in the medical curriculum.
  - c. Revise the mark-up structure to reduce the financial incentive for pharmacists to dispense

higher cost drugs over less expensive alternatives. Further, consider the introduction of a dispensing fee to reward the pharmacist's counselling services and a small financial incentive for dispensing non-branded generics that cost no more than the maximum reimbursed price reimbursed by CNAM (e.g. Australia, Switzerland).

- d. Leverage on existing data to monitoring prescribing patterns and use this information to target efforts in improving rational prescribing.
2. Strengthening the existing price monitoring system:
  - a. Revise the list of drugs monitored to the most important from a public health perspective (i.e. national essential medicines).
  - b. Include analysis of affordability for different income quintiles
  - c. Monitor consumption patterns and the market shares of originator, branded generic and generic for individual drugs.
  - d. Use these data for policy decisions (e.g. to guide decision on inclusion in the reimbursement and percentage reimbursement).
3. Revising pricing and reimbursement regulations and consider the introduction of:
  - a. A clawback system to share savings accrued from discount between the supply chain and CNAM (medium term). The system should be designed to maintain the incentive for the supply chain to negotiate discounts with manufacturers and wholesalers yet at the same time share part of the savings with CNAM.
  - b. A differential mark-up system with lower mark-ups for medicines reimbursed by CNAM and a regressive mark-up system where higher prices are associated with lower mark-ups (medium). Consider the introduction of a dispensing fee to compensate for lower mark-ups and a small financial incentive to dispense lowest cost generic drugs (medium).
  - c. A tendering system for selected medicines (purchased in high volume) from the reimbursement list should be tested. This could be easily achieved given existing country's experience in conducting national tenders for inpatient medicines. (short/medium).

The saving generated by these reforms should be used to expand the list of generics reimbursed and the level of reimbursement.

#### *B. Quality of medicines:*

1. A post-marketing surveillance system is urgently needed to ensure continuous monitoring of the quality of medicines (short/medium term). This monitoring system could be paper based in the beginning with the aim to move on the longer term to an electronic system. To ensure its impact, it is essential that the necessary funds and human capacity are made available for the development and maintenance (particularly in terms of IT and analytical capacity) of the system. Beyond data collection, doctor's awareness needs to be raised about the importance of post-marketing surveillance as their collaboration will be vital for the proper functioning of such system.

#### *C. Reimbursement list:*

1. The process of compilation of the reimbursement list needs to be improved. There should be a clear link between the national EML, the reimbursement list and clinical protocols. All the three should only include proved cost-effective drugs addressing diseases of public health relevance in the country.
2. A formal written process for updating the EML should be developed following international best practice (e.g. see Swedish wise list).
3. Pharmacies need to be given sufficient time (at least one week) to adjust their reimbursement prices once a new list is approved. Each time a new reimbursement list is developed, information documents summarising the main changes relevant to patients and should be developed and made available in all pharmacies across the country and primary health care practices.

## 5.3 Accountability and use of information

### *Integrating evidence into practice*

1. Consider adopting a methodology for development of full clinical practice guidelines that includes grading of clinical recommendations and levels of evidence. Developing such guidelines is a much lengthier process than adapting existing international guidelines into abbreviated clinical protocols; it should be done in parallel with the existing practice of protocol development rather than replacing it.
2. Have draft clinical protocols and practice guidelines reviewed by an international consultant before submitting them for review by the local expert committee for Ministry of Health approval. Such reviews have been found to be very effective in other countries where the clinical protocol development process is relatively new, since it ensures that evidence is appropriately interpreted and can detect subtle influences of the pharmaceutical industry.
3. In medical schools and institutes responsible for postgraduate training and continuing medical education, there should be a formalized system whereby department heads are required at regular intervals to provide evidence of how training materials are updated to reflect new clinical guidelines. The “language” of evidence-based medicine should be evident in all clinical lectures and modules.
4. To address the frequent prescription of non-evidence-based drugs in hospitals, consider incorporating lists of frequently used but non-evidence-based medications into clinical protocols along with performance indicators related to their use, facilitating quality assurance reviews of both ambulatory and inpatient care that focus on ending ineffective (and possibly harmful) practices that increase out-of-pocket expenditures for patients.

### *Creating the right incentive systems*

1. In order to refine the capitation model, consider an analysis of the use of primary health care by age group and sex.
2. The pay-for-performance indicators are mainly aimed at monitoring the process of interventions. This is good but in the long term, it may be necessary to include indicators that reflect the impact or outcome achieved through the implementation of key processes.
3. Determine the frequency of, and criteria for, revision of indicators and targets.
4. Consider reducing the frequency of the pay-for-performance reviews (currently monthly) in order to reduce the reporting burden.
5. Continue to expand the DRG system, defining transition phases and criteria for each phase, and introducing a system to monitor hospital performance.

### *Creating adequate information solutions*

1. The reforms currently under way in the health system of the Republic of Moldova necessitate new standards for the quality, reliability and efficiency of medical information. The Ministry of Health should intensify planned works to create and implement a unified e-health system to optimize the collection, analysis, dissemination and strategic use of information by all actors in the health system.
2. Improve the use of the existing DRG and emergency databases to ensure that available data are used:
  - at the national level for strategic planning (BBP, budget planning and resource allocation, setting priorities for drug purchasing, etc.);
  - in management, for monitoring the quality of health services at the health provider level and in the system as a whole;
  - to design and implement simple performance monitoring systems at the service-delivery level.
3. Develop disease-specific ambulatory flow sheets that serve as a reminder for screening

and summarize essential findings. The current ambulatory health record does not contain health summaries or flow sheets that contribute to the assessment of NCD risk factors, so time-consuming searches through visit notes are required to find essential information, such as smoking status, alcohol use, screening results, and even blood pressure results. Many facilities have designed their own flow sheets to summarize risk factors that are required for pay-for-performance reporting, and these are likely to contribute positively to management of chronic NCDs.

4. Since the implementation of full electronic outpatient records in primary health care is a long-term process, it is advisable to start with the development of electronic registers of patients with chronic cardiovascular disease, cancer, diabetes or asthma.
  - The registers should be connected to the CNAM population database, and have the same format and standard set of information, including not only the personal details of the patient (which now exist on paper), but also a consistent set of clinical information (prescriptions, follow-up, test results, etc.). This will allow managers and providers to assess the adequacy of case management according to clinical protocols and provide insight into the results of treatment.
  - Registers of chronic patients will allow personalized monitoring of case management according to treatment protocols, monitoring of prescriptions and drug scheduling, as well as providing a standard package of aggregated clinical information by health facility and across the system as a whole.

## References

- <sup>1</sup> WHO Regional Office for Europe. Health for all database. (Jan 2013 update). Copenhagen; 2013 (<http://data.euro.who.int/hfad/>).
- <sup>2</sup>Smith O, Nguyen SN. Getting better: improving health system outcomes in Europe and Central Asia. Europe and Central Asia report. Washington, DC: World Bank; 2013.
- <sup>3</sup>WHO, Charting the way to well being. European Health Report 2012. Copenhagen: WHO Regional Office for Europe; 2012.
- <sup>4</sup>WHO, Noncommunicable diseases country profiles 2011. Geneva: World Health Organization; 2011.
- <sup>5</sup>WHO 2011
- <sup>6</sup>Codreanu I, Sali V, Gaibu S et al. Prevalence of hypertension and diabetes and coexistence of chronic kidney disease and cardiovascular risk in the population of the Republic of Moldova. *International Journal of Hypertension*, 2012 doi:10.1155/2012/951734.
- <sup>7</sup>Turcanu G, Domete S, Buga M, Richardson E. Republic of Moldova: health system review. *Health Systems in Transition*, 2012, 14(7):1–151.
- <sup>8</sup>WHO, Barriers and facilitating factors in access to health services in the Republic of Moldova. Copenhagen, WHO Regional Office for Europe, 2012.
- <sup>9</sup>WHO, The World Health Report 2000. Health systems: improving performance. Geneva: World Health Organization; 2000.
- <sup>10</sup>WHO, Global Health Expenditure Database
- <sup>11</sup>Turcanu G, Domete S, Buga M, Richardson E. Republic of Moldova: health system review. *Health Systems in Transition*, 2012, 14(7):1–151. ISSN 1817-6127 Vol. 14 No. 7
- <sup>12</sup>WHO, Evaluation of the structure and provision of primary care in the Republic of Moldova. Copenhagen: WHO Regional Office for Europe; 2012 (Republic of Moldova Health Policy Paper Series No. 5).
- <sup>13</sup>WHO, Equitable access to essential medicines: A framework for collective action, WHO policy perspectives on medicines, WHO, Geneva, March 2004

- <sup>14</sup>Reiffen D and Ward MR, 'Branded generics' as a strategy to limit cannibalisation of pharmaceutical markets, *Managerial and decisions economics*, 28: 251-265, 2007
- <sup>15</sup>Kanavos P, Cost-Font J, Seeley E, Competition in off-patent drug markets: Issues, regulation and evidence, *Economic Policy*, 23(5): 499-544
- <sup>16</sup>Safta V, Naznachenie lekarstv v respublike Moldova [The prescription of medicines in the Republic of Moldova]. State Medical and Pharmaceutical University Nicolae Testemitanu, Chisinau, Republic of Moldova, 2011 (unpublished document).
- <sup>17</sup>National Bureau of Statistics of the Republic of Moldova. Accesul populației la serviciile de sănătate [Population's access to health services]. In: Rezultatele studiului în gospodării [Results of household budget survey]. Chisinau; 2013.
- <sup>18</sup>Shishkin S, Jowett M. A review of health financing reforms in the Republic of Moldova. Copenhagen: WHO Regional Office for Europe; 2012 (Health financing policy paper 2012/1).
- <sup>19</sup>Centre for Health Policy and Studies. Monitorul Sanatatii: accesul si calitatea serviciilor medicale spitalicesti in perceptia populatiei din Republica Moldova [Health Monitor: access and quality of hospital services in the perception of the population from the Republic of Moldova, Results of the national poll, 2011]. Chisinau; 2011.
- <sup>20</sup>World Health Organization, Ministry of Health of the Republic of Moldova, Health Action International Global, Medicines Agency, Nicolae Testemitanu. Medicines prices, availability, and affordability and price components in the Republic of Moldova (2011). Copenhagen: WHO Regional Office for Europe; 2013.
- <sup>21</sup>Sautenkova N, Ferrario A, Bolokhovets G, Kanavos P. Availability and affordability of medicines and assessment of quality systems for prescription of medicines in the Republic of Moldova. Copenhagen: WHO Regional Office for Europe; 2012 (Republic of Moldova Health Policy Paper Series No.6).
- <sup>22</sup>World Health Organization, Health Action International Global. Measuring medicine prices, availability, affordability and price components. World Health Organization and Health Action International, 2008.
- <sup>23</sup>Kanavos P, Schurer W, Vogler S, The pharmaceutical distribution chain in the European Union: Structure and impact on pharmaceutical prices, EMINet, March 2011
- <sup>24</sup>National Audit Office (UK), The Community Pharmacy Contractual Framework and the retained medicine margin, [http://www.nao.org.uk/wp-content/uploads/2010/03/0910\\_Community-Pharmacy.pdf](http://www.nao.org.uk/wp-content/uploads/2010/03/0910_Community-Pharmacy.pdf) (Accessed 26.02.2014)
- <sup>25</sup>Kanavos P, Seeley L, Vandoros S, Tender systems for outpatient pharmaceuticals in the European Union: Evidence from the Netherlands, Germany and Belgium, EMINet, October 2009
- <sup>26</sup>Balabanova et al.2012.
- <sup>27</sup>CNAM. Activitatea companiei nationale de asigurari in medicina in anul 2011. Chisinau; 2012.
- <sup>28</sup><http://www.who.int/bulletin/volumes/85/6/06-032177/en/>.
- <sup>29</sup>PBS reforms: Premium free dispensing incentive <http://www.medicareaustralia.gov.au/provider/pbs/fifth-agreement/premium-free-dispensing-incentive.jsp> [Accessed 6 March 2014]
- <sup>30</sup>Paris V and Docteur E, Pharmaceutical pricing and reimbursement policies in Switzerland, OCED Health Working Papers, OCED, Paris, 2007
- <sup>31</sup>Gustafsson et al. The 'wise list'- a comprehensive concept to select, communicate and achieve adherence to recommendations of essential drugs in ambulatory care in Stockholm, *Basic Clin Pharmacol Toxicol*. 2011 Apr;108(4):224-33



# Annex 1. Data sources and methods

Data sources for this report include demographic and health-related indicators found in the WHO European Health for All database (January 2013 update).<sup>a</sup> The majority of the data cover 1980–90 to 2009–10. The indicators selected for analysis reflect expert recommendations and practical considerations of what evidence was available.

Consideration has been given to estimates and projections of data reported annually by the 53 Member States of the WHO European Region; country subgroups have been applied to highlight regional trends. These subgroups reflect those defined in the Health for All database, as outlined below.

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

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

For medicines, data sources included the WHO Global Health Expenditure Database, the WHO/HAI survey on prices and availability of medicines in the Republic of Moldova (2011), national data from the household budget survey and data provided by the national insurance company (CNAM).



<sup>a</sup>WHO Regional Office for Europe. Health for all database. (Jan 2013 update). Copenhagen; 2013 (<http://data.euro.who.int/hfad/b/>).

# Annex 2. Criteria for scoring coverage of population interventions

## Criteria for scoring tobacco- and alcohol-related interventions and score for the Republic of Moldova

Tobacco control core service coverage	Score for Republic of Moldova	Limited	Moderate	Extensive
<b>Range of anti-smoking interventions (FCTC)</b>	<b>Limited</b>	<b>Prevalence among adults greater than 30%</b>	<b>Prevalence among adults between 18% and 30%</b>	<b>Prevalence among adults less than 18%</b>
Raise tobacco taxes	Limited	Tax is less than 25% of retail price	Tax is between 25% and 75% of retail price	Tax is greater than 75% of retail price
Smoke-free environments	Limited	100% smoke-free environment enforced in schools and hospitals only	100% smoke free environment enforced in hospitals, schools, universities, public transport and workplaces	100% smoke-free environment enforced in all public places, including hospitality sector
Warnings of dangers of tobacco and smoke	Moderate	Warning labels required on tobacco products, size not specified	Warning labels on all tobacco products at least 30% of package size (front and back)	Warning labels greater than 50% of package size (front and back), with pictures (standardized packaging)
Bans on advertising, promotion, sponsorship	Limited	No ban or ban on national TV, radio and print	Ban on direct and indirect advertising and promotion	Ban on all advertising and promotion, including at points of sale, with effective enforcement
Quit lines and nicotine replacement therapy (NRT) <i>(This is an additional criteria not in Global Action Plan)</i>	Limited	No quit lines or government-funded cessation services, but NRTs allowed and available for full pay by individuals	Quit lines, government-funded cessation services are available (possibly for payment). NRT available for full pay.	Toll-free quit line, cessation services and NRTs are available and affordable (covered at least partially)



Alcohol control core service coverage	Score for Republic of Moldova	Limited	Moderate	Extensive
<b>Interventions to prevent harmful alcohol use</b>				
Raise taxes on alcohol	Limited	Alcohol taxes follow price index	Alcohol taxes follow price index; special taxes on products attractive to young people	Alcohol taxes follow price index and related to alcohol content; special taxes on products attractive to young people
Restrictions, bans on advertising/promotion	Limited	Regulatory frameworks exist to regulate content and volume of alcohol marketing	Regulatory frameworks exist to regulate content and volume of alcohol marketing including direct and indirect marketing as well as sponsorship	Full ban on alcohol marketing of any kind
Restrictions on availability of retailed alcohol	Moderate	Regulatory frameworks on serving of alcohol in governmental and educational institutions	Regulatory frameworks on serving of alcohol in governmental institutions and ban on serving alcohol in educational institutions	All governmental and educational institutions free of alcohol
Minimum purchase age regulation and enforcement (This is an additional criterion not in Global Action Plan)	Limited	Minimum purchase age of 18 years for all alcohol products	Minimum age of 18 years for all alcohol products and effective enforcement	Minimum age of 18 years for all alcohol products and effective enforcement; loss of license to sell alcohol if found breaking the law
Allowed blood alcohol level for driving(This is an additional criterion not in Global Action Plan)	Limited	Blood alcohol content (BAC) maximum of 0.5 g/l	BAC to be a maximum of 0.5 g/l and zero for novice and professional drivers	BAC to be a maximum of 0.2 g/l and zero for novice and professional drivers
Multisectoral policy development (This is an additional criterion not in Global Action Plan)	Moderate	Multisectoral national strategy on alcohol policy	Multisectoral national strategy and a coordinating council on alcohol policy	Multisectoral national strategy and a coordinating council on alcohol policy, plus an adequately resourced nongovernmental sector, free of potential conflict of interest with the public health interest



## Criteria for scoring diet and physical activity-related interventions and score for the Republic of Moldova

Alcohol control core service coverage	Score for Republic of Moldova	Limited	Moderate	Extensive
<b>Interventions to improve diet and physical activity</b>		Prevalence of children/adults who are overweight or obese is greater or equal to 30%	Prevalence of children/adults who are overweight or obese is 20–30%	Prevalence of children/adults who are overweight or obese is lower than 20%
Reduce salt intake and salt content in foods	No data available	Not more than 10% reduction of salt intake has been registered in the past 10 years	Salt intake has been reduced by at least 10% in the past 10 years	Salt intake has been reduced by more than 10% in the past 10 years
Virtually eliminate <i>trans</i> -fatty acids from the diet	Limited	There is no evidence that <i>trans</i> -fats have been significantly reduced in the diet	<i>Trans</i> -fats have been reduced in some food categories and industry operators but it is not mainstreamed	<i>Trans</i> -fats have been virtually eliminated from the food chain through government legislation and/or self-regulation
Reduce free sugar intake ( <i>This is an additional criterion not in Global Action Plan</i> )	Limited	The aim to reduce the intake of free sugars is mentioned in policy documents but no action has been taken	The reduction of intake of free sugars by 5% is mentioned and partially achieved in food categories	The reduction of intake of free sugars by 5% is monitored with a focus on sugar-sweetened beverages
Intake of fruit and vegetables ( <i>This is an additional criterion not in Global Action Plan</i> )	Limited	The aim to increase consumption of fruit and vegetables is mentioned but no monitoring data have been collected to support it.	The aim to increase consumption of fruit and vegetables is in line with the WHO/FAO recommendations of at least 400 g/day and some initiatives exist	The aim to increase consumption of fruit and vegetables is in line with the WHO/FAO recommendations of at least 400 g/day with population initiatives, incentives to increase availability, affordability and accessibility
Reduce marketing of food and non-alcoholic beverages to children ( <i>This is an additional criterion not in Global Action Plan</i> )	Moderate	Marketing of foods and beverages to children is noted as a problem but has not been translated into government-led initiatives.	WHO set of recommendations on marketing have been acknowledged and steps have been taken in self-regulatory approach to reduce marketing pressure on children	WHO recommendations on marketing and the Implementation Framework on Marketing are followed consistently, including mechanism for monitoring
Promote awareness about diet and activity	Not assessed	Workforce development for nutrition and physical activity does not exist; nutrition and physical activity not a priority element in primary care	Some workforce development for nutrition and physical activity; nutrition and physical activity starting to be considered a priority element in primary care	Workforce development for nutrition and physical activity exists and nutrition and physical activity a priority element in primary care

## Annex 3. Features of the Moldovan health system that affect delivery of services for NCD control

Table A3.1. Overall scorecard of Moldovan health system<sup>a</sup>

	Patient engagement	Service delivery models	Coordination of care	Economies of scale	EBM integration	NCD drug availability	Payment system	Human resource problems	Management	Health information system	Resist to change	Total
Screening for cervical cancer and diagnosis of precancerous lesions	2	3	2	1	1	0	0	3	1	3	1	17
Early case-finding for breast cancer and diagnosis at all stages	2	3	2	2	1	0	0	3	1	3	0	17
Risk factor detection and risk stratification at primary health care level	3	2	1	0	1	0	1	2	2	3	0	15
Effective management of hypertension, diabetes, lipids	2	2	1	0	1	2	2	2	2	3	0	17
Diabetes management	2	3	1	0	1	1	1	2	2	3	0	16
Rapid response and hospital-level care for AMI, stroke	2	2	0	2	2	2	1	2	2	3	0	18
<b>Total</b>	13	15	7	5	7	5	5	14	10	18	1	

**0=minor negative impact**

**1=moderate negative impact**

**2=major negative impact**

**3=persistent major negative impact**

<sup>a</sup> For details, see Tables A3.2 to A3.6.

**Table A 3.2 Health system challenges and opportunities that affect screening for cervical cancer and treatment of precancerous lesions**

Health system challenges and opportunities	Level	Findings
<b>Patient engagement</b>	2	Limited self-referral for routine Pap smears; limited awareness of recommended screening ages and intervals. At one site, only 32% of eligible women had cervical cancer screening. Doctors note that it is difficult to convince women to agree to screening.
<b>Service delivery models</b>	3	Family doctors not performing Pap smears (refer to nurse-midwife). Smears sent to central level, resulting in long delays. Most women with cytological abnormalities referred to national oncology centre. System of biannual Pap smears not optimal for cervical cancer screening given limitations in human resources. Absence of external quality assurance of cytology laboratories.
<b>Coordination of care</b>	2	Functioning adequately in large central territorial medical associations where staffing is optimal, but difficulties with outsourcing cytology in rural areas.
<b>Economies of scale</b>	1	Human resource issues not conducive to decentralization of cytology services.
<b>Integration of evidence-based medicine</b>	1	Inappropriate methods being used for smear preparation (specimens allowed to air-dry; Romanovski-Giemsa stain used instead of Papanicolaou).
<b>NCD drug availability</b>	0	
<b>Payment system</b>	0	
<b>Human resource problems</b>	3	Family doctors inadequately trained to perform Pap smears and interpret cytology reports. High rates of inadequate smears from periphery suggest need for more effective training programmes. Lack of cytologists has led to centralization of services, overloading of cytologists, and long delays in getting results to primary care level.
<b>Management</b>	1	Incorporation of cervical cytology coverage into pay-for-performance system of NHIC has stimulated primary care level to conduct internal audits, but used only to assess coverage, not quality.
<b>Health information system</b>	3	No electronic system to track at-risk population, send patient reminders, or track screening coverage and quality.
<b>Resistance to change</b>	1	No apparent initiative to explore alternative, evidence-based methods for prevention of cervical cancer that are more appropriate in the current human resource situation.



**Table A3.3. Health system challenges and opportunities that prevent detection of CVD risk factors and risk stratification at primary level**

Health system challenges and opportunities	Level	Findings
<b>Patient engagement</b>	3	Presumed low awareness among population of silent nature of hypertension and need for blood pressure screening
<b>Service delivery models</b>	2	Primary health care providers not diagnosing and classifying majority of patients with hypertension or type 2 diabetes. Inefficient use of specialists; inefficient use of nurses. Most primary health care facilities have nurse check-in room but only small percentage of clinic patients go through (those who request screening or those over 45 who have not been screened in the past year). International Diabetes Federation estimates that 36% of patients with type 2 diabetes in the Republic of Moldova are unaware of their disease <sup>a</sup>
<b>Coordination of care</b>	1	Good communication between specialists and primary care providers at family medicine centres and some health centres (document in same record); records not consistently available when patients referred between levels.
<b>Economies of scale</b>	0	Not relevant
<b>Integration of evidence-based medicine</b>	1	High quality clinical protocols covering screening, diagnosis, and risk stratification of CVD and diabetes. Clinical protocols widely available and used. Some discrepancies between protocol content, national policies on health maintenance visits, and pay-for-performance indicators.
<b>NCD drug availability</b>	0	
<b>Payment system</b>	1	Current pay-for-performance indicators may need some strengthening and may lead to overprovision of screening services. Survey findings suggest that informal payments for ambulatory care may be limiting access to health services (37% of patients made informal payments for outpatient care; 30% did not access health care when medical attention was needed). <sup>b</sup>
<b>Human resource problems</b>	2	Shortage of primary care providers and advanced age of primary health care workforce; inadequate scope of services of mid-level providers in health offices. Low rates of asthma registration (0.3% in one site visited) probably related to limited provider knowledge of various presenting symptoms. <sup>c</sup>
<b>Management</b>	2	Internal quality monitoring system limited to audits to collect data for pay-for-performance indicators. Few efforts by management to encourage health care workers to increase case-finding of NCDs currently under-registered.
<b>Health information system</b>	3	Existing system is primarily paper-based and it is difficult to generate provider-level disease-specific reports. No electronic tracking of NCD risk factors.
<b>Resistance to change</b>	0	



<sup>a</sup> <http://www.idf.org/atlasmap/atlasmap>, 2012 data (accessed 09 June 2013).

<sup>b</sup> Health In Time of Transition, Policy Brief: Access, New Research: Access to health care in Republic of Moldova. April 2013.

<sup>c</sup> The prevalence of asthma among children in neighbouring Romania is near 9% (The Global Asthma Report 2011. Paris, France: The International Union Against Tuberculosis and Lung Disease, 2011).

**Table A3.4. Health system challenges and opportunities for NCD control.**

Health system challenges and opportunities	Level	Findings
<b>Patient engagement</b>	2	Presumed low awareness among population of benefits of primary prevention and asymptomatic nature of hypertension; misperceptions among population regarding chronic medication use; limited impact of systems to support patient adherence. Schools for hypertensive patients poorly attended and patient education material limited.
<b>Service delivery models</b>	2	National protocols require all hypertensive and patients with diabetes to be referred to specialists (cardiologist or endocrinologist) for confirmation of diagnosis and periodic consultation, rather than only high-risk patients or those not responding to therapy. Limited use of mid-level personnel in periodic risk assessment and patient education (e.g. cardiologists lead hypertension schools).
<b>Coordination of care</b>	1	Good communication between specialists and primary care providers at family medicine centres and health centres; input from specialists in the private sector not documented in ambulatory record.
<b>Economies of scale</b>	0	Not relevant.
<b>Integration of evidence-based medicine</b>	1	Doctors routinely use protocol summaries designed for primary level; good link with pay-for-performance indicators. Some recommendations in clinical protocols and pay-for-performance plan not based on strong evidence. Statins not prescribed for primary prevention in high-risk patients and only small fraction who need secondary prevention. Frequent use of non-evidence-based medications, such as hepatoprotectors and cardioprotectors. Almost all medications listed in medical record, including acetylsalicylic acid, are listed by trade name.
<b>NCD drug availability</b>	2	Statins are expensive, and not in drug reimbursement list. Branded drugs are commonly prescribed; pharmaceutical industry has undue influence.
<b>Payment system</b>	2	Pay-for-performance system focused more on preventive service coverage rather than quality of management.
<b>Human resource problems</b>	2	Shortage of primary care providers in periphery; inadequate scope of services of mid-level providers in family doctor offices and health offices.
<b>Management</b>	2	Internal quality monitoring system almost exclusively focused on audits required for pay-for-performance programme. No clear system linking facility goals and plans to internal quality audits, with exception of some territorial medical associations facilities in Chisinau.
<b>Health information system</b>	3	Ambulatory records do not facilitate tracking of vital NCD data (risk factors, laboratory results) needed for treatment decisions. Facilities are designing their own disease-specific flow sheets.
<b>Resistance to change</b>	0	





**Table A3.5 Health system challenges and opportunities that prevent effective management of diabetes**

Health system challenges and opportunities	Level	Findings
<b>Patient engagement</b>	3	Effectiveness of diabetes schools limited by low utilization, lack of patient education materials and inadequate staffing. Limited awareness among patients of recommendations on screening for complications. Limited capacity to provide close support to patients or to individualize targets for glycaemic control, exercise programmes and dietary recommendations.
<b>Service delivery models</b>	1	Over-reliance on endocrinologists for management of patients not requiring insulin. Even in Chisinau, with high staffing levels of specialists, waiting time can be one week. Currently, only endocrinologists allowed to order glycosylated haemoglobin test. Family doctors rarely start oral medications without consulting endocrinologist. Underutilization of mid-level providers for screening for complications and patient education, although in some Chisinau facilities, nurses check chart to see if recommended screenings and consultations have been completed.
<b>Coordination of care</b>	1	No problem where specialists and primary care personnel share facility, but some issues when patients are referred to specialists at higher level (provider choice; wait times; distance; information sharing).
<b>Economies of scale</b>	0	
<b>Integration of evidence-based medicine</b>	1	Evidence-based protocols in use. ACE inhibitors usually used to manage hypertension in people with diabetes. Statins rarely used for primary or secondary prevention of CVD in people with diabetes.
<b>NCD drug availability</b>	1	Metformin and oral sulfonylureas provided free to patients with diabetes through CNAM drug reimbursement plan. Antihypertensives available at 50% discount; statins not discounted.
<b>Payment system</b>	1	Current pay-for-performance programme focused on disease detection rather than quality of management.
<b>Human resource problems</b>	2	Low staffing levels of endocrinologists (e.g. one site visited had one ¼-time endocrinologist for population of 76 000). Low staffing levels of family doctors (same site had only 47% staffing of family doctors). Primary care personnel not confident in ability to manage patients with type 2 diabetes not requiring insulin (about 80% of practising family doctors completed 6-month retraining rather than 3-year residency). Mid-level providers not trained to play active role in educating patients with diabetes.
<b>Management</b>	2	Internal quality monitoring system almost exclusively focused on audits required for pay-for-performance programme. No clear system linking facility goals and plans to internal quality audits. Managers not promoting or requiring more rational use of specialists.
<b>Health information system</b>	3	Ambulatory record format does not facilitate tracking of data needed to manage patients with diabetes. No diabetes-specific management flow sheet being used. Lack of electronic register and health information system makes it difficult to generate provider-specific and disease-specific reports for quality monitoring.
<b>Resistance to change</b>	0	



**Table A3.6 Health system challenges and opportunities that prevent rapid response and delivery of hospital-level core interventions for AMI and stroke**

Health system challenges and opportunities	Level	Findings
<b>Patient engagement</b>	2	Long delays in seeking care for symptoms of AMI and stroke. No public campaigns to raise awareness of need for rapid medical attention; “wait and see” mentality. Providers see patients as becoming more demanding, less tolerant.
<b>Service delivery models</b>	2	Emergency response system well organized and well equipped. Higher-level interventions could be provided at pre-hospital level, even where ambulances are staffed by mid-level providers. Very limited critical services offered in admission department of hospitals; not using emergency department model. Admission department coverage at night often by providers without special training in managing ACS, strokes. Overuse of hospitalization for treatment of hypertension.
<b>Coordination of care</b>	0	Good communication between ambulance services and hospital for critical patients.
<b>Economies of scale</b>	2	Need for clear referral criteria for AMI patients between rayon, oblast, and tertiary hospitals. Thrombolytic therapy not available at regional or district hospitals.
<b>Integration of evidence-based medicine</b>	2	Good quality clinical protocols being used, but no visible efforts to motivate doctors to stop prescribing non-evidence-based medicines, which affect hospital budget and patient OOP expenditures.
<b>NCD drug availability</b>	2	Limited availability of thrombolytics at district hospital level.
<b>Payment system</b>	1	No disincentive to hospitalize patients with asymptomatic severe hypertension.
<b>Human resource problems</b>	2	
<b>Management</b>	2	No clear setting of priorities, targets, and plans connected with internal audits. Internal audits focus on utilization data (e.g. average length of stay) rather than content of care. Not using existing DRG database to analyse quality gaps.
<b>Health information system</b>	3	Limited quality data in DRG database; vast majority of health information system is paper-based and not conducive to generating reports on quality indicators.
<b>Resistance to change</b>	0	



## Annex 4. Affordability of medicines for NCDs included in the reimbursement list

This analysis is based on data provided by CNAM (total expenditure and total reimbursement), household budget surveys (income quintiles) and reimbursement lists for medicines. \*Data for 2013 include only January-April.

In the following figures, each column in a cluster represents a different year (2008, 2010, 2012 and January to April 2013 if available), each cluster of columns refers to a different medicine and strength (e.g. spironolactone 25 mg, lisinopril 2.5 mg, etc.). The columns' unit is days of wages needed to purchase one month of treatment (left hand y-axis) and the stacked parts (shown in different colours) show the days of wages needed for different income quintiles (1st-5th income quintile). The red diamonds show the percentage of a medicine's maximum reimbursement price which is reimbursed by CNAM (right-hand y-axis). The red bar represents the frontier between what is considered to be affordable (according to the WHO/HAI definition this is less than one day of wage of the lowest paid public sector worker) and what is not considered to be affordable (more than one day of wage of lowest paid public sector worker). In the figures below the focus is not on wages for the lowest paid worker but on wages for different income quintiles although the lowest paid public sector worker's wage (Lei 20 (US\$ 1.7) in 2011) is very close to the wage of the 1st income quintile (i.e. the poorest, Lei 18/day in 2012).

Medicines were ordered of increasing affordability (less days of wage needed to purchase one month of treatment for a chronic condition) on the three different graphs.



Fig A 4.1

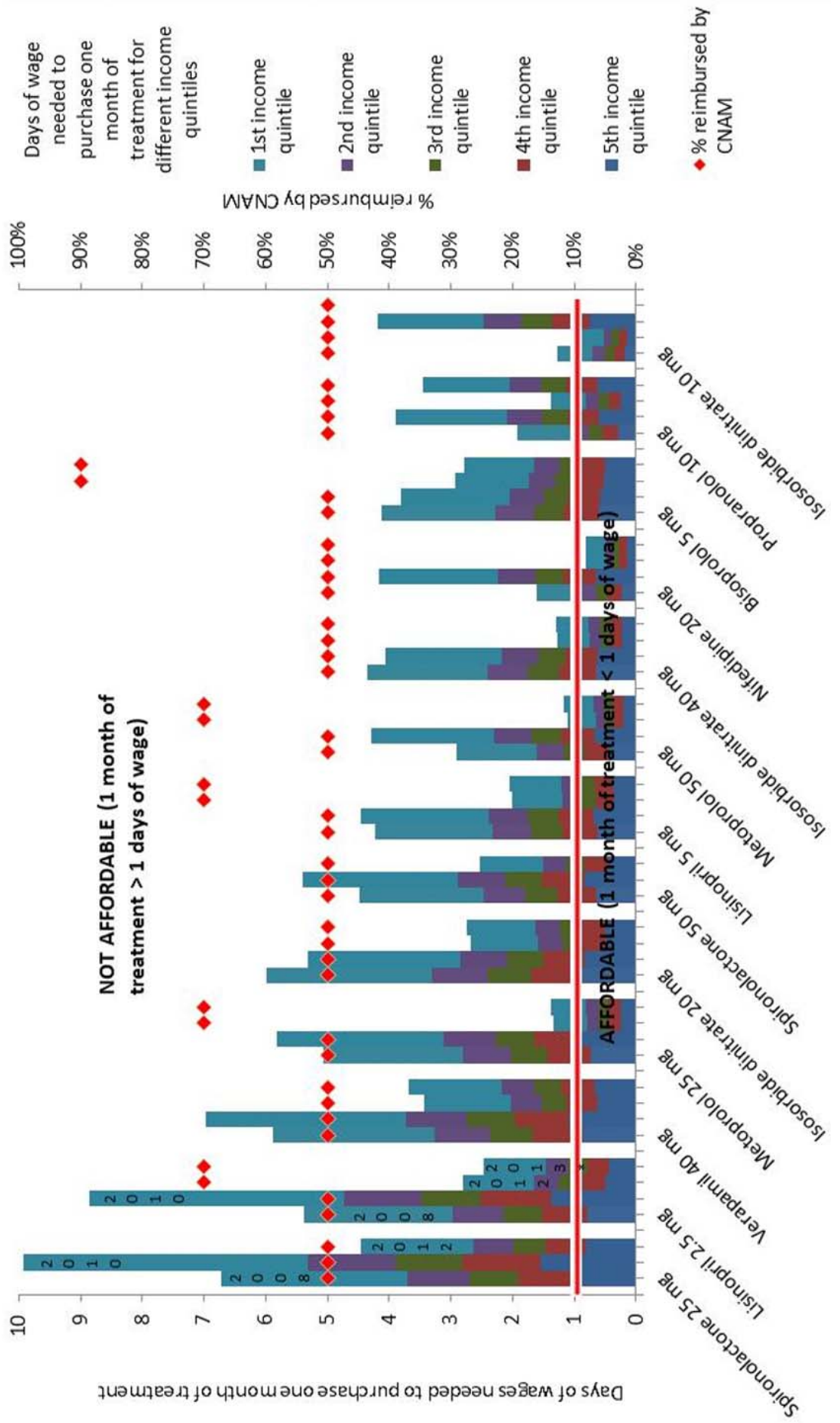
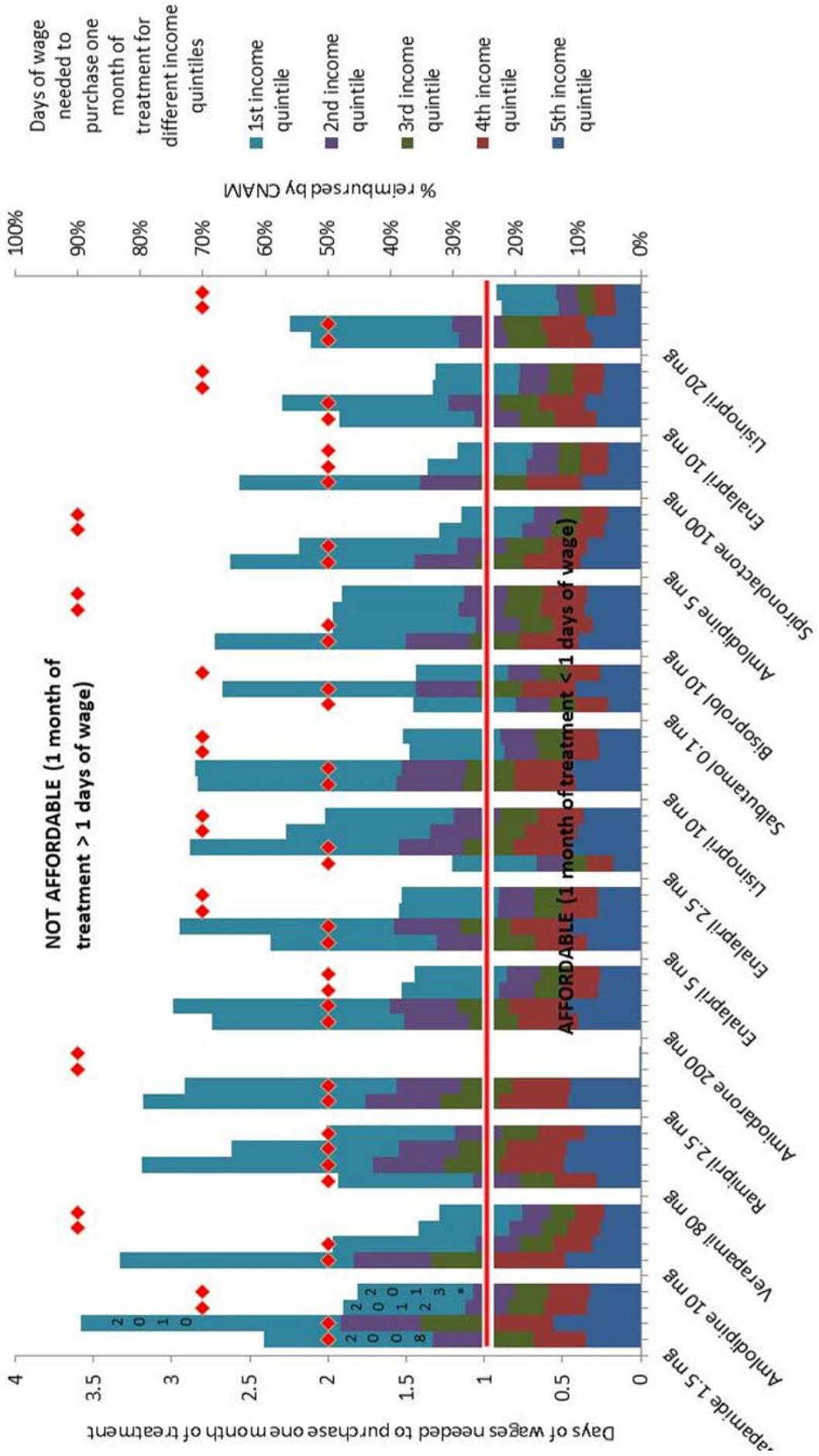


Fig A 4.2





## The WHO Regional Office for Europe

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

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