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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

Intermediate report. Draft diagnostic, actuarial costing model and an array of options for reforming the current system

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Second Revision

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List of abbreviations

BBP	Basic benefits package
BDA	Bulgarian Drug Agency
BMA	Bulgarian Medical Association
CMS	Crisis Monitoring Surveys
CCPs	Clinical Care Pathways
COM	Council of Ministers
DALYs	Disability-adjusted life years
DDD	Defined Daily Dose
EMR	Electronic Medical Record
EU	European Union
FFS	Fee for Service
GPs	General Practitioners
HDD	Health Data Dictionary
HIA	Health Insurance Act
HIIS	Health Insurance Information System
HMIS	Health Management Information System
IMF	International Monetary Fund
INN	International non-proprietary names
LTC	Long-term care
MOF	Ministry of Finance
MOH	Ministry of Health
MPHMA	Medicinal Products in Human Medicine Act
NCDs	Non-communicable diseases
NFC	National Framework Contract
NHA	National Health Accounts
NHIF	National Health Insurance Fund
NICE	National Institute for Health and Care Excellence
NRA	National Revenue Agency
NSI	National Statistical Institute
OECD	Organization of Economic Cooperation and Development
OOP	Out-of-Pocket expenses
OTC	Over the counter products
PDL	Positive Drug List
PFM	Public Financial Management
PVHI	Private voluntary health insurance
RAS	Reimbursable Advisory Services
SLA	Service Level Agreement
SWOT	Strengths Weaknesses Opportunities Threats
YLLs	Years of life lost
WDI	World Development Indicators
WHO	World Health Organization

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Overview

This report presents a baseline health financing diagnostic to assist the Government of Bulgaria to develop health financing reform options that improve the efficiency, equity, and long-term sustainability of the Bulgarian health system.

Bulgaria's National Health Insurance Fund (the NHIF) was established in 1999 and has since become the largest health services purchaser in the country. In principle, the NHIF is comparable to many 'social health insurance funds' of the EU. The 1998 Health Insurance Law mandates coverage for all Bulgarians. Employers and employees jointly contribute 8 percent of labor income as do the self-employed. Large groups - including children, pensioners, the disabled, the unemployed, and other socially dependent groups - are covered by the state, in a system which achieves a significant intergenerational redistribution from the working-age population towards younger and older groups. The Law stipulates that the insured are entitled to receive "medical care within the scope of the basic package of health-care activities guaranteed by the budget of the NHIF". Ordinances issued by the Ministry of Health (MoH) specify the benefits package. The NHIF employs a wide range of payment methods to pay providers of care directly. Hospitals are reimbursed on the basis of bundled fee-for-service payments called clinical care pathways. General practitioners are paid on the basis of a combination of capitation and fee-for-service, while ambulatory specialists, laboratories and dentists are paid on a fee-for-service basis.

In 2012, around BGN 6.3 billion was spent on health care in Bulgaria, which represents 8 percent of GDP[1]. Approximately 51 percent of total expenditure was public, of which some 80 percent is disbursed through the NHIF. The remainder was mostly out-of-pocket (OOP) costs incurred by patients. OOP payments are the single largest source of both revenue and expenditure in the health system in Bulgaria, representing 47 percent of total expenditure in 2012. The second largest is the NHIF, which "commands" in a formal and organized way 40 percent of total expenditure on health.

When put in perspective with countries of comparable income, total health expenditure is above average in Bulgaria and public expenditure, average. Still, Bulgaria spends 12 percent of its government/public budget on health, slightly above the global average given its income level. Yet for its income and health spending levels, Bulgaria's health outcomes are about average and over time have not improved at the rates found in neighboring countries. Moreover, despite having more hospital beds and health workers than other comparable income and health spending countries, Bulgaria's health delivery system is increasingly hospital-centric and is not well targeted to its predominant and growing non-communicable disease burden.

Furthermore, Bulgaria is clearly an outlier when it comes to OOP payments and a considerable distance from meeting the WHO criterion for adequate financial protection, which specifies a ceiling of 15-20 percent for OOP payments as a proportion of total health spending. Further, the situation has deteriorated markedly over time.

A key objective of any health insurance system is to protect individuals from large and/or unexpected health expenditures they cannot afford. In this sense, coverage provided by the NHIF is incomplete. Between 7 and 12 percent of Bulgarians who do not live abroad permanently are uninsured[2]. The vast majority of them are vulnerable non-working populations with lower socio-economic status. While ethnic minorities are more likely to lack coverage, the majority of the uninsured are ethnic Bulgarians. The high level of OOP payments considerably limits the financial protection of all. At 5.3 percent in 2013, the share of households' budgets spent on health is high when compared to the 3 percent average in Western Europe. More than 4 percent of the population is impoverished each year due to OOP payments.

[1] Data are from the National Health Accounts, National Institute of Statistics.

[2] See Section 3.2.1 of this report.

Another set of question reviewed in this report is whether the NHIF is adequately leveraging its purchasing power to promote efficiency in the system. When it comes to services, many aspects of the NHIF purchasing arrangements conform to global 'good practices'. However, the ways in which these arrangements have been implemented, both individually and collectively, leave room for improvement, and they contribute to the health sector's bias towards expensive hospital care. When it comes to efficiency in pharmaceutical expenditure, the current listing and pricing mechanisms provide little assurance of value for money for medicines included in the Positive Drug List. Policy settings do not promote competition in the off-patent market and many prices for both patented and off-patent medicines compare unfavorably to prices in wealthier countries with far greater capacity to pay. Current cost-sharing policies for medicines limit the NHIF's financial exposure but expose the population to high levels of out-of-pocket payments as pharmaceuticals account for more than three quarters of OOP spending.

The health financing diagnostic identified some of the constraints which might hinder the development of more effective health financing policies. In particular, an analysis of the health insurance information ecosystem was undertaken. A number of competent and active IT vendors have contributed to the development of data standards and therefore have provided some reasonable means of interoperability and interconnection between health care providers and the NHIF. Unfortunately, the current NHIF information system, after several years without maintenance support, has reached a point where many functions must be conducted manually and may be at risk of collapsing. It cannot provide information essential to managing quality, cost, and risks (e.g. a database of insured, information on individuals' consumption over time, etc.), and it is not well prepared to accommodate significant changes in functionality or transaction volumes which reforms might precipitate.

To finalize the health financing reform baseline assessment, the governance of the NHIF was reviewed from structural and operational perspectives. Good governance of mandatory health insurance systems requires stability of rules and coherent decision making structures, which are both limited in Bulgaria. In particular, there is a substantial misalignment of roles and responsibilities. For instance, while the NHIF is accountable for delivering the benefits package to all insured within the allocated budget, decisions about the benefit package are taken by outside entities with little attention to cost-benefit ratios or financial impact. The NHIF is also obliged to contract all providers which meet basic standards set by the MoH. Ultimately, a decision needs to be made about which organization (NHIF, MOH or Ministry of Finance) has the final authority and the responsibility for ensuring that the system is – and remains – efficiently run and financially sustainable. This fragmentation and misalignment of roles and responsibilities precludes an effective holistic approach to health financing policymaking and implementation.

An actuarial model projecting NHIF future trends in revenues and expenditures based on NHIFs statutory contribution levels, underlying expenditure experience, and future fiscal pressures is being prepared to serve as a tool for NHIF policymaking. This model will provide a tool to assess the explicit types and validity of structural excess health cost inflation pressures documented in other studies which could preclude the achievement of future budget targets in the absence of specific cost control policies. Options to offset this potential fiscal deterioration could - in theory - include cutting non-NHIF health programs and/or other public expenditure, increasing revenues, or undertaking efficiency enhancing reforms in the health and other public sectors. Given Bulgaria's slow growth prospects, current investments in health, and the overall pressure on public finance resulting from competing priorities and the aging of the population, efficiency gains appear to be the main option for generating future fiscal space. Such gains can be found in NHIFs purchasing procedures for services and medicines, better rationalization of the benefits package on the basis of cost-effectiveness and financial protection criteria, and more comprehensive control over financial and clinical policy levers that affect spending. As long as existing cost drivers remain under-managed, it may prove difficult to maintain a strict fiscal stance. On the other hand, even if the enforcement of health budget ceilings is successful, it will most

likely lead to further shifts towards private out-of-pocket spending, further increases in poverty and diminishing financial protection.

Executive Summary

The objective of this study is to assist the Government of Bulgaria to develop and assess health financing reform options that improve the efficiency, equity, and long-term sustainability of the Bulgarian health system in the context of its National Health Strategy 2014-2020.The first step in this process is to assess how the Bulgarian health financing system operates and performs. This report presents a baseline diagnostic of Bulgaria's health financing system within the broader overall context of the Bulgarian health system and economy. The final report will present an analysis of reform options designed to address the above goals.

The analytical approach taken to evaluate the health system's performance is based on internationally accepted goals and objectives of health systems, and an analytically-driven empirical framework that incorporates perspectives from public health, demography, epidemiology, economics, actuarial science, and public financial management. The three basic health financing functions of revenue-raising, risk pooling, and purchasing are analyzed, as are their interactions with other key critical health system components. In particular, this study employs the globally accepted WHO/World Bank taxonomy of health systems, which identifies resource generation, stewardship, and service delivery as key health system functions, and focuses on three objectives: (i) improving health outcomes, (ii) assuring financial protection, and (iii) being responsive to consumers in an equitable, efficient, and sustainable manner.

Novel aspects of this study include: (i) a comprehensive analysis of Bulgaria's health financing arrangements; (ii) international benchmarking and trend analyses of Bulgaria's inputs, outcomes, and health financing performance relative to comparable income countries, neighboring countries, and EU averages; (iii) a detailed up-to-date measurement of the uninsured population based on recent household surveys carried out collaboratively by the World Bank and the Open Society Institute; (iv) an updated analysis of financial protection based on recent (2010 and 2013) household budget surveys provided by the National Statistical Institute of Bulgaria; (v) an initial assessment of Bulgaria's capacity to improve value for money for prescription medicines; (vi) the first ever comprehensive analysis of the solvency and sustainability of the National Health Insurance Fund (NHIF) based on an actuarial model being developed for this study; (vii) a fiscal space analysis highlighting Bulgaria's challenging future public finance context; and (viii) an assessment of Bulgaria's health management information systems.

The structure of the report is as follows:

- ✓ Chapter 1 presents selected elements of the underlying demographic, labor market, economic and health system performance contexts which are necessary to frame a discussion on health financing.
- ✓ Chapter 2 provides a detailed description of the health financing system by outlining its main features and sheds light on how the system operates in practice, including a focus on pharmaceuticals and health information systems.
- ✓ Chapters 3 and 4 offer a comprehensive empirical and analytical assessment of the performance of health financing in Bulgaria, which includes (i) trends in expenditures and revenues in Bulgaria's health financing system and various comparable countries, (ii) the provision of financial protection in an equitable, efficient, and financially sustainable manner, (iii) purchasing efficiency for health care goods and services, (iv) the financial soundness of the NHIF in the context of future fiscal space constraints, and (v) a summary assessment of the overall governance and operation of the NHIF.
- ✓ Chapter 5 summarizes the findings of this report and puts them in the context of broader analysis of the strengths and weaknesses of the health system (SWOT).

Key findings

The country context

Demographic, epidemiological, and economic trends coupled with structural inefficiencies in the current health system pose significant challenges for publicly financing adequate health services for Bulgaria's population going forward. This has led to a situation in which the current mix of health services does not meet the needs of the population and in which, absent significant reform, future health and financial prospects appear bleak.

Bulgaria's population is aging and declining. By 2050, one in three Bulgarians is projected to be older than 65, while only one in two Bulgarians will be of working age. The UN projects net emigration of 10,000 people per year until 2050, while Eurostat forecasts an even larger cumulative loss. As a result, by 2050, the old age-dependency ratio is expected to double to 50, and labor supply projections suggest a decline of up to 40 percent[3].

Aggravating these pressures is the sizeable and increasing fraction of the population that is either poor, or highly vulnerable to falling below the poverty line, and can therefore ill afford to pay for essential services out of pocket. Poverty levels have been increasing since 2008; in 2011 more than 21 percent of the population lived below the national poverty line, over 16 percent of the population lived on $5 (PPP) or less per day, and close to 4 percent lived on $2 per day or less. However, nearly half the population (and 60 percent of those 65 and over), however, or 3.6 million Bulgarians, are living at risk of poverty or social exclusion, the highest percentage in the EU[4].

These trends in vulnerability and the declining tax base are not aided by the substantial part of the labor force that works in the informal sector. In recent years the "shadow economy" has been estimated to be worth more than one-third of GDP, and approximately 16.5 percent of all workers work informally.

Since its EU accession in 2007, Bulgaria has not been able to reduce gaps in health outcomes and has failed to catch up with EU-15 countries, despite a convergence in income. It has even lost ground to countries it had outperformed in the past. Yet on a more global scale, current indicators for life expectancy and disability-adjusted life years (DALYs) per capita suggest average to above average performance in comparison to other countries with similar levels of income and health spending per capita.

These gaps result in part from poor progress in dealing with non-communicable diseases, which are now the key causes of mortality and morbidity in Bulgaria. Neither primary care services nor health promotion activities appear appropriately geared to the prevention, diagnosis, or management of these conditions. An examination of public spending across countries suggests that Bulgaria spends comparatively more on inpatient services and, at the same time, comparatively less on outpatient care. Hospital capacity and hospitalization rates are above average, even when comparing Bulgaria to countries of similar levels of income and health spending. A 2013 analysis of hospitalization rates in Bulgaria suggests that at least 20 percent of procedures performed on an inpatient basis could have been completed in basic outpatient settings[5]. The current deployment of human resources does not support a

[3] World Bank (2013)
[4] Eurostat
[5] World Bank (2013).

strong primary care sector that can deal with non-communicable diseases. Even though Bulgaria has no overall shortage of physicians, and in fact ranks above both the EU-15 countries and other countries with similar income and health spending profiles, both general practitioners and nurses are in short supply. The health workforce is also rapidly aging and outmigration among young health professionals is frequent. Moreover, only 5 percent of general practitioners have been trained in family medicine.

Bulgaria's current health system thus appears ill-suited to meet its current and future needs. Given the speed and magnitude of the projected demographic and epidemiological transitions, the basic inefficiencies in the current health system, and Bulgaria's challenging future economic situation, substantive reforms to the Bulgarian health system are clearly imperative.

Bulgaria's health financing system

History and design of the National Health Insurance Fund

Bulgaria's health financing and health system reforms to date have exemplified the movement away from the Soviet (Semashko) model. In this model, universal coverage was provided through a public national health service funded through general revenues. Physicians and other health workers were salaried public employees, hospitals received global budgets, and private practice and insurance were prohibited.

Over time, Bulgaria has shifted towards a more pluralist health system based on a social health insurance model. The National Health Insurance Fund (the NHIF) was established in 1999 and has since become the single largest health services purchaser in the country. In principle, the NHIF appears to be fairly comparable to many 'social (or mandatory) health insurance funds' of the EU. In principle, the entire population is covered through a compulsory and autonomous public health insurance fund. Workers (and their employers) pay social health insurance contributions based on their incomes, while the poor, unemployed, children, pensioners, the disabled, and other socially dependent or priority groups are exempt from contributions and are financed by the government. The single national public fund pools the health risks for the entire population and purchases services from both public and private providers.

The reforms also separated purchasing from provision with the intention that money would follow patients, rather than finance existing facilities irrespective of their performance and usage. Provider payment mechanisms were reformed; private provision of health care services and private health insurance were authorized; ambulatory care was privatized; and hospitals became autonomous. The Ministry of Health (MOH) retained responsibility for public health, emergency care, TB, HIV/AIDs, mental health and some other services, and its role evolved more towards that of stewardship of the system.

The 1998 Health Insurance Law mandates compulsory coverage for all Bulgarians, via an employer/employee mandate for formal sector employers/workers and an individual mandate for the self-employed including informal sector workers. The current contribution rate is 8 percent of income with a minimum and maximum amount set in the law. The rest of the population - including children, pensioners, the disabled, the unemployed, and other socially dependent groups - is covered by the state. Unemployed individuals who are not entitled to unemployment compensation or social supports are also required to enroll and make contributions. Uninsured people can activate coverage at any point, and may be motivated to do so when hospitalized or faced with catastrophic expenditure, resulting in potential adverse selection for the NHIF. Contributions are collected by the National Revenue Agency and transferred to the NHIF.

The Health Insurance Law stipulates that the insured are entitled to receive "medical care within the scope of the basic package of health-care activities guaranteed by the budget of the National Health Insurance Fund". Ordinances issued by the Ministry of Health, not the NHIF, specify the basic benefits package. The benefits package includes primary and specialist outpatient medical and dental care, drugs, diagnostics, inpatient hospital care. The Ministry of Health covers a range of preventive and curative medical services outside of the scope of the NHIF benefits package including notably some immunization, emergency care, mental health care, in vitro fertilization and organ transplantation. Cost sharing requirements vary by type of service, and coverage of services is ultimately limited by the NHIF budget approved by Parliament for the year.

The NHIF employs a wide range of payment methods differing by provider type. In general, hospitals are reimbursed from the NHIF on the basis of bundled fee for service payments for some 300 clinical care pathways (CCPs) and are also subject to annual budget ceilings. GPs are paid on the basis of a combination of capitation and fee for service, while outpatient specialists, laboratories and dentists are paid on a fee for service basis. For private patients, whether they purchase services directly or are privately insured, providers are generally paid on a fee for service basis. A National Framework Contract (NFC) is negotiated every year between the Bulgarian Medical Association and the NHIF and along with a separately determined 'price/volume' agreement that determines the conditions for provider participation, and the prices and volumes of services provided by all categories of medical professionals.

Financing flows

In 2012 around BGN 6.3 billion was spent on health care in Bulgaria, 51 percent of which was public expenditure, largely disbursed through the NHIF. The 51 percent public share of the money going into the system is collected and pooled through mandatory taxes and contributions. The rest is private money, mostly spent by households at the time individuals seek care ("out-of-pocket"). In total, NHIF pools and distributes around 80 percent of all public health funding[6].

On the private side, over 98 percent of 'revenues' for health arise through the direct purchase of services, as well as copayments and other out of pocket (OOP) costs by consumers. Voluntary private health insurance makes up a relatively insignificant proportion of private expenditure. Overall, OOP costs are the single largest source of both revenue and expenditure in the health system in Bulgaria, representing 47 percent of the total in 2012. The second largest is the NHIF, which "commands" in a formal and organized way 40 percent of total expenditure on health.

[6] National Health Account, National Statistical Institute.

Assessment of health financing system performance

International comparisons and trends

While per capita health spending in Bulgaria is still below EU averages, Bulgaria spends more than other comparable income countries. Total expenditure increased from 5.2 to 8 percent of GDP between 1995 and 2012 and per capita health spending increased from $US82 to $US566. Compared to its neighbors, Bulgaria's total per capita health spending started from a much lower base, but its upward trend has tended to mirror those of others in the region such as Romania and Croatia. Nevertheless in 2012 it was still lower than the EU-12 and EU-15 averages of $US1,160 and $US4,379 per capita, respectively. Yet in 2012, total health spending in per capita terms - both as a share of total health spending and as a share of GDP - was above average relative to countries with similar levels of income[7].

Public spending on health in Bulgaria is similar to levels observed in countries of comparable income. In 2012, public health spending represented 51 percent of total health spending and 4.1 percent of GDP. In per capita terms, public health spending was $US291. By most metrics, public health spending was about average for all measures in a global comparison in 2012, except for the public share of total health spending, which was slightly below average due to the high level of private spending.

Bulgaria appears to give relative priority to the public sector in terms of the Government's overall revenue and expenditure efforts, and to health in the overall budget. Bulgaria's total government spending relative to GDP (expenditure effort) and total revenues relative to GDP (revenue effort) are both slightly above average compared to other similar income countries. Between 1995 and 2012, the Government has increased the share of its budget spent on health from 8.5 to nearly 12 percent. Compared with similar income countries, this is slightly above average, suggesting that Bulgaria gives slightly more priority to health within its budget allocations.

Bulgaria, however, is clearly an outlier when it comes to private expenditures - in particular, out-of-pocket payments. OOPs are significantly above global averages as a share of total health spending (47 percent), as a share of GDP (3.8 percent), and in per capita terms ($US268 in exchange rates). Bulgaria is thus a considerable distance from meeting the WHO criterion for adequate financial protection, which specifies a ceiling of 15-20 percent for OOP payments as a proportion of total health spending. Further, the situation has deteriorated markedly over time. OOP costs in Bulgaria increased by more than 20 percentage points between 1995 and 2012, while countries such as Thailand, Chile, Mexico and Turkey, which started either from a similar or higher base, have been able to make tremendous progress in reducing out-of-pocket expenditure. Bulgaria's trend runs counter to the well-established relationship of diminishing private (and OOP) expenditure shares with increasing GDP.

Financial Protection, Equity, and Redistribution

The core objective of any health insurance system is to protect individuals from large and/or unexpected health expenditures they cannot afford. This entails both broad insurance coverage (that is, insurance extended to all citizens) and low levels of out-of-pocket payments after payment of health insurance contributions. Given the heterogeneity of both health needs and ability to pay, providing

[7] Data from this section come from the WHO NHA database and the Bulgarian NHA

adequate financial protection on an equitable basis generally entails cross-subsidies from healthy to sick, and from rich to poor.

Bulgaria's NHIF is the compulsory national health insurer and single risk pool for the entire population. As such, it pools health risks efficiently and comports with global tends toward centralization of risk pooling. Some 90 percent of the population is currently enrolled including most children and most elderly whose coverage is subsidized by the state. The range of services covered is broad. There are however two main limitations to coverage.

The first limitation to coverage is that a significant share of the population is uninsured and that the vast majority of the uninsured are disadvantaged. Bulgaria is falling short of its intention of providing coverage to all citizens. Triangulating data from the National Revenue Agency and representative households surveys suggests that between 7 and 8 percent of the population living in Bulgaria at any point in time are not covered by health insurance. In addition, it is likely that some people who work abroad seasonally may not be insured when they come back. This would put the proportion of the uninsured somewhere between 7 and 12 percent of the Bulgarians who do not live abroad permanently[8].

The data also suggest heterogeneity of coverage among the resident population – in particular, pronounced disadvantages among populations with lower socio-economic status, minorities, and age groups whose contributions are not covered by the state. Results from a multiple regression show that compared to the third quartile of the wealth distribution, the bottom two quartiles are 10 and 5 percentage points less likely to have health insurance, while individuals who have not completed primary schooling are similarly disadvantaged, being 12 percentage points less likely to report coverage than those who have completed a secondary education. The Roma population, even after controlling for resource poverty and low rates of educational attainment, is still 25 percentage points less likely to be covered, while for the Turkish ethnic minority the difference is 7 percentage points.

The bulk of the uninsured population, however, consists of poor, working-age, ethnic Bulgarians who are not working. More than half of the insured are ethnically Bulgarian, and the bottom wealth quartile account for more than 40 percent of the uninsured. Children and the elderly account for only around 10 percent of those lacking coverage, while those who reported no work in the four weeks prior to the survey make up 76 percent of the uninsured population.

Access to coverage by the NHIF is only one aspect of the problem. The household budget surveys in Bulgaria show that the high level of out-of-pocket payments considerably limits the financial protection of all. The share of the household budget spent on health is relatively high, at 5.3 percent in 2013, compared to about 3 percent on average in Western Europe[9]. Almost 20 percent of households in Bulgaria spent 10 percent or more of their total expenditures on health care in 2010 and 2013. This figure is well above the EU-15 average of 5.8 percent.

The poverty impact of out-of-pocket payments is considerable. Excessively high household expenditures on health care can push some households into poverty. If a household has total consumption expenditures (pre-OOP) above the national poverty line but its total nonmedical spending (post-OOP) is below the poverty line, it could be considered to have suffered impoverishment due to OOP spending for health. In 2010, data from the 2010 Household Budget Survey showed that 14.2 percent of the population had total expenditure levels below the official poverty line. An additional 3.8 percent who did not fall

[8] See Section 3.2.1 of this report for details on various sources triangulated.
[9] Smith O, Nguyen SM. *Getting Better: Improving Health System Outcomes in Europe and Central Asia*. http://dx.doi.org/10.1596/978-0-8213-9883-8

below the poverty line given their total consumption expenditure, would have done so once health payments were subtracted. In 2013, this proportion was 4.2 percent and even some households in the highest quintile fell below the poverty line after spending on health.

The last question reviewed is the redistribution that takes place in the context of the public health insurance system. While data limitations preclude a complete benefits-incidence analysis, data on contributions and expenditures suggest that health care resources do flow primarily from the relatively healthy working-age contributors to the elderly population with greater health needs, and to a lesser extent to children. In other words, the state makes contributions on behalf of children and the elderly that are lower than the amount the NHIF spends on these groups, and contributions from the working-age population fill the gaps. Estimates based on NHIF data suggest that for every BGN 100 paid in payroll contributions, BGN 45 helped cover the costs of care for children and the elderly. This redistribution across generations is an advantage of publicly financed systems over systems where people have to pay according to their need. Given the high risk of poverty of the elderly in Bulgaria, it is also probably reasonable to assume that some redistribution between the better off and the poor is taking place.

In summary, adequate financial protection has still not been established for the population of Bulgaria, but observable redistribution operated though the NHIF appears to be equitable. Gaps in insurance coverage remain, particularly for the working age population and vulnerable groups such as poor households, minority populations, and individuals without jobs. Out-of-pocket payments are relatively high and lead some households to fall below the poverty line – even households that would otherwise be affluent. There is evidence that public health care resources do flow from the relatively healthy working-age population to groups that require more health care services – namely, the elderly and children. The fact remains that households' greatest effort towards paying for care occurs through out-of-pocket and such payments are not pooled or redistributed across households.

Purchasing efficiency of services

Payment and contracting methods are key policy levers that could help achieve a set of macro objectives, such as overall cost containment, and micro objectives, including effective access and the efficient delivery of services at the facility level. However, a number of operational obstacles in Bulgaria are hindering progress toward these objectives. The NHIF, with its unified set of rules and incentives for payments, manages some 40 percent of all health spending and has important impacts on provider behavior and spending levels. Many aspects of Bulgaria's purchasing arrangements conform to global 'good practices,' such as capitation for GPs, prospective case-based payments to hospitals, caps on provider spending, and referral penalties, among others. However, the ways in which these arrangements have been implemented, both individually and collectively, leave room for improvement, as they contribute to the health sector's bias towards expensive hospital care.

Both GPs and ambulatory care specialists face incentives for containing costs but no disincentives to refer patients to hospitals. Like many other countries, Bulgaria has chosen a mixed remuneration system for GPs, consisting of a risk adjusted capitation payment (representing around half of payments to GPs) combined with additional fee for service payments to encourage desirable provider behaviors. Capitation payments are supplemented by fees for preventive services and treatment of patients with chronic conditions (dispensary patients). Ambulatory care specialists are paid on a fee-for-service basis. Both types of outpatient providers manage tight monetary budgets for investigations and diagnostic tests and numerical ceilings on referrals. However neither class of providers is limited in hospital referrals.

In fact, the referral budget holding mechanism may serve to encourage referrals to hospitals. First, GPs are required to refer certain types of chronic care patients (e.g., hypertension, COPD) at regular intervals, even patients who could be treated effectively in the primary care setting or do not require the service. As chronic patients represent a large share of the population, savings could well be achievable if these patients were managed in primary care. Second, while the referral caps for specialists referrals and investigations are very strict, and physicians are fined for every referral over their individual limits, they are not rewarded for achieving any savings in their referral budgets. Third, GPs and specialists are not held accountable for unnecessarily referring patients for hospital-based care, which can be used to overcome the strict limits put on ambulatory care volumes.

Other rules and procedures that apply to GPs and specialists exacerbate this bias towards hospital care. Some services that could be delivered on an ambulatory basis are provided in hospitals only, and a referral may be the only way to access them. For services such as CT scans or MRIs, waiting times and prior authorization procedures may be so onerous that a referral to a hospital can become a more effective way to ensure patient access to a service, even where it would be possible for a GP or ambulatory care specialist to provide the appropriate care. When a patient is admitted to a hospital and assigned to a clinical care pathway, the overall payment for the service can be significantly higher in the inpatient setting. Additionally, ambulatory care specialists argue that reimbursement levels for some services they could provide are too low for the required investments to be financed (e.g., purchase and maintenance of necessary equipment). Finally, specialists who work both in ambulatory care and inpatient settings may have additional incentives to refer to hospitals, as their hospital contracts contain some rewards for the volume of patients they treat. A specialist can benefit by being paid for his or her service by the NHIF, while receiving an incentive payment from the hospital for bringing in the patient.

There are also a number of ways in which the contracting and payment system for hospitals contributes to perpetuating the problems. First, since hospitals are paid on the basis of a bundled fee for service system, they have strong incentives to admit ever increasing numbers of patients. In principle hospitals are subject to volume caps, which should limit the number of admissions. In practice, however, once allocated budgets are spent, hospitals continue to provide services and simply petition the NHIF for additional funding - which they generally receive. In other words, the macro-pressure to limit the volume of hospital care appears much less effective than the pressure to limit other types of care.

Second, the NHIF cannot refuse to contract with any hospitals approved by the MOH, regardless of whether the NHIF considers the facility's services to be appropriate or necessary. In other words, the NHIF cannot benefit from the well-documented advantages of selective contracting. Moreover, as the numbers of facilities and beds have continued to grow, the number of cases has had to be shared among an increasing number of players, further reinforcing individual incentives to do more, and limiting any one facility's ability to benefit from economies of scale.

Third, Bulgaria lacks standard hospital admission criteria, which results in facilities admitting any and all patient types. Patients can self-refer to the Emergency Department to be admitted. Neither rules nor incentives exist to encourage patients to seek care in a more cost-effective and appropriate primary care setting. In fact, in many cases, admission to the hospital results in lower out-of-pocket costs for the patient, and minimal or no waiting time for tests and procedures.

Finally, the way in which the clinical care pathways (CCPs) – which were initially conceived as clinical guidelinies - have been operationalized has resulted in a number of inefficiencies. The list of CCPs and their prices are negotiated annually and not based on costing data. Over time, new (often higher-valued) CCPs have been introduced splitting CCPs into multiple groups and/or creating new groups. Changes often

give the appearance of being introduced to "benefit" a particular specialty or particular facilities, or to limit competition in specific segments of the market. Moreover, no comprehensive exercise has been undertaken to ensure that CCPs are resource homogenous, that their relative CCP values reflect efficient resource allocation or even current clinical practice guidelines or protocols. CCP algorithms also require certain levels of inputs to be present, and certain types of services to be delivered, and they define minimum (not maximum) lengths of hospital stays that must be met in order to be eligible for payment. In other words, CCP requirements dictate what and how medical care must be provided regardless of whether it is in the patient's best interests or clinically indicated. Although some limits can be justified to ensure patient safety, this is a potential source of waste and generally undermines the incentives for production efficiency and quality embedded in most diagnostic-based case payment systems. CCPs can also be fairly easily gamed, since hospitals – and physicians – are the ones who select the CCP for each hospital stay (the allocation of a patient to a DRG is based on a computerized algorithm which is more difficult to manipulate).

It is also important to keep in mind that out-of-pocket payments are the single largest source of provider payments in the system. Thus, providers derive a significant share of their income from individual patients, the price takers of unconstrained fee-for-service, and this dilutes the impact of the NHIF. Additionally, the population appears not to have much faith in lower levels of care.

The primary and outpatient care systems lack a credible quality assurance framework that could be used to measure and reward quality of care and efficiency of service delivery. Most of the rules surrounding referrals appear to be geared towards containing cost. There are no data – and certainly no transparent mechanism – on which to build consensus or to demonstrate that they necessarily reflect modern evidence based practice

In summary, the administrative rules and regulations, embedded practice requirements, price negotiations, and lack of enforcement of spending caps together create massive distortions and inefficiencies in the health system, even though Bulgaria appears to have moved away from input to output-based financing methods, and uses widely accepted 'good practice' international payment methodologies across care settings. In reality, rigid input elements, rather than clinically determined norms and output-based methods, govern delivery of care. As a result, providers at each level of care focus on maximizing revenue rather than treating their patients in the most appropriate setting.

Purchasing efficiency of medicines

The pharmaceutical sector in Bulgaria lacks an overarching, integrated national medicines policy, and current policy settings appear most acutely focused on limiting NHIF outlays, rather than providing financial protection to patients. While regulatory standards and processes have been largely brought into line with current EU standards, mechanisms for listing and pricing medicines on the Positive Drug List (PDL) are not ensuring adequate value for money for the NHIF, and are contributing to inefficiencies in the health sector.[10] Pharmaceuticals account for 37 percent of health care expenditures (compared with

[10] Listing and pricing of medicines on the Positive Drug List (PDL) is the responsibility of the National Council on Prices and Reimbursement of Medicinal Products (the Pricing Council). In addition to decisions on the inclusion and pricing of medicines on the PDL, the Pricing Council sets the maximum retail selling prices of over-the-counter medicines, as well as the maximum (ceiling) prices for all other medicines. The Pricing Council thus sets the price of all drugs marketed in Bulgaria. The PDL is the more restrictive list of drugs which are (to a varying degree) paid from public funds. The reimbursement list is the list of outpatient medicines reimbursed by the NHIF (Annex 1).

an EU average of around 25 percent[11]) and out of pocket (OOP) costs for medicines account for nearly three-quarters of all OOP expenditure.

The principal price-setting mechanism for medicines is international (external) reference pricing, with prices set at the level of the lowest of ten primary and seven secondary EU member states. However, the referenced prices are 'official' prices and may not capture confidential discounts and negotiated rebates, and they may not reflect (and may not have been assessed for) reasonable value for money in the referenced member states. Medicines may also be subject to strict controls on utilization to offset unit prices in reference countries, and this is unlikely to be taken into account in a simple pricing look-up. Finally the references prices are drawn from EU member states that all enjoy substantially higher per capita GDP than Bulgaria, so even if the price of a drug were shown to reflect reasonable value for money in the source country, this may not be the case in Bulgaria.

In addition, current processes for listing medicines on the PDL are insufficiently influenced by considerations of cost effectiveness, and there are no explicit links between the conditions of listing and any approved treatment guidelines. Medicines with evidence of coverage in at least five of the ten primary reference countries may be considered for listing via an assessment of clinical and economic data, but the weight given to economic considerations is too low to ensure that products approved for listing necessarily demonstrate reasonable cost effectiveness. Moreover the Pricing Council does not have sufficient expertise in pharmacoeconomic evaluation of medicines to undertake rigorous assessments of the data submitted by applicants.

There are also no mechanisms to drive competition within the off-patent medicines market. While the ex-factory price of the first (and any subsequent) generic version of a medicine listed is subject to a statutory price reduction, generic prices are otherwise determined by external referencing.

As a result of these listing and pricing mechanisms, the prices of some medicines on the Bulgaria PDL are as high - and some even higher - than in countries that are much wealthier. Insufficient consideration of cost-effectiveness when listing and pricing medicines together with potentially inadequate or ineffective restrictions on prescribing result in fast-growing expenditures on some very high unit cost and potentially non cost-effective medicines. For multi-source, and particularly high volume medicines for chronic conditions some prices also compare unfavorably with, for example, prices in the UK and New Zealand. At the same time discounting in the supply chain suggests scope for lowering prices and clawing back some of the savings currently accruing to pharmacies.

The focus on cost-containment contributes to high out-of-pocket expenses. For multi-source products containing the same International Non-proprietary Name (INN) in the same pharmaceutical form, the amount of NHIF reimbursement is set as a proportion of the product with the lowest cost per Defined Daily Dose. Therapeutic reference pricing is also applied across different molecules within the same therapeutic class where the products are considered to be of similar efficacy and safety in a particular indication (cluster reference pricing). Since actual prices can substantially exceed benchmark prices and as levels of reimbursement by the NHIF are set as a proportion of the benchmark price, OOP costs to patients can be extremely high, often exceeding the NHIF contribution.

Other policies related to the pharmaceutical sector contribute to high costs for patients that end up being regressive. Wholesale and retail mark-ups, set by the Ministry of Health, are proportional to drug prices. In addition to statutory mark-ups, pharmacy revenues include dispensing fees of 2 BGN per prescription (not per item), but which is only payable for prescriptions comprising items that are 100%

[11] Rohova et al (2013)

reimbursed by the NHIF. Because dispensing fees are low and retail margins proportional to drug costs, this creates incentives for pharmacists to dispense more expensive medicines. Prescribing by INN is not encouraged and substitution at pharmacy is not permitted. There is also widespread mistrust in the quality and safety of generics. Thus, many prescriptions are written and dispensed for products with prices higher than the reference or benchmark price, which increases OOP costs to patients, often by substantially more than the co-insurance amount. Finally, there are no safety nets or "stop-loss" provisions to protect individuals from catastrophic OOP costs.

Out of pocket costs for key medicines are also likely to be undermining access and adherence to treatment for medicines which are important for delaying or preventing progression of non-communicable diseases, particularly cardiovascular and chronic respiratory disease.

In summary, current listing and pricing mechanisms provide little or no assurance of value for money for new medicines included in the Positive Drug List. Current policy settings do not promote competition in the off-patent market and many prices for both patented and off-patent medicines compare unfavorably with countries with far greater capacity to pay. Several high cost medicines contributing significantly to rapid expenditure growth are unlikely to be cost effective in Bulgaria and should be subject to price (re)negotiation, tight restrictions on use, and in some cases, delisting. If Bulgaria were also able to encourage greater competition in the off-patent medicines market, this, together with measures to address demand and promote rational prescribing, could significantly improve efficiency in pharmaceutical expenditure.

An actuarial assessment

Every year, in line with the Public Finances Act, the NHIF prepares a draft law presenting its own budget which is ultimately submitted to the Council of Minister for approval along with the consolidated fiscal program and the draft budget law of the Pension Fund. The Council of Ministers may make adjustments in particular to ensure that the consolidated fiscal program adheres to the predetermined budget balance which is set in the Public Finances Act. The package is then sent to Parliaments where it can also be adjusted, while remaining within the macro-fiscal parameters of the Public Finances Act. If in the course of the year, it appears that there could be an overrun, shortfalls can be accommodated through measures taken by the NHIF, through implicit rationing, which impacts providers (though deficits) and/or consumers (through rationing of services) or additional budget allocations. The latter must ensure continued compliance with the Public Finances Act and be approved by Parliament (as occurred twice in 2014).

While virtually all insurance funds undertake studies to assess their actuarial soundness[12], neither the NHIF, nor any other Government agency in Bulgaria appear to perform such analyses to systematically review revenue and expenditure trends or their causal factors and how they will likely manifest themselves in the future. Also absent is an assessment of the long-term solvency and financial sustainability of the NHIF. Thus the NHIF (and the Government more generally) are hampered in their

[12] Actuarial soundness is established when 'projected premiums in the aggregate, including expected reinsurance cash flows, governmental risk adjustment cash flows, and investment income, are adequate to provide for all expected costs, including health benefits, health benefit settlement expenses, marketing and administrative expenses, and the cost of capital'. See American Academy of Actuaries, *Actuarial Soundness*, American Academy of Actuaries, Washington, D.C., May 2012, p.2.

capacity to strategically manage nearly 40 percent of all health spending, 10 percent of the government budget, and over 3 percent of its GDP.

Since understanding the actuarial soundness of the NHIF is necessary for both the health system diagnostic and the development of reforms, an actuarial model for the NHIF is being developed as part of this study. The actuarial model will analyze trends in the underlying variables that determine the growth in costs and revenues of the insurance scheme, as well as their potential contributions to the government's fiscal balance.

The costs and revenues of the NHIF are largely determined by the size and composition of the covered population, the benefit package, the age and gender cost structures resulting from the provision the existing package, the provider payment mechanisms used, employment and labor force trends, and government fiscal and social policy. This effort thus entails taking in to account projections of macroeconomic indicators (income, employment, prices, GDP and so on), labor projections, demographic developments, etc.

The development of the actuarial model is proving challenging for a number of reasons relating to information access to determine underlying trends and forecasting assumptions for critical parameters. In many cases, the necessary underlying information is scattered among multiple agencies, sometimes multiple data sources are inconsistent (e.g., on the number of uninsured), and in other cases data are simply not available – or could not be accessed. The NHIF itself has to rely on external sources to determine coverage, and has little information about the eligibility basis of those it covers and those uninsured who are required by law to enroll.

The model is still being developed but analyses of the historic NHIF financial and utilization data confirm a number of findings from the analyses described earlier. The state appears to be paying its appropriate share as mandated in the law. People on labor contracts appear to be largely enrolled. The bulk of the uninsured appear to be self- insured individuals who for the most part are poor or near-poor. The costs of outpatient health care are not growing rapidly. The largest sources of costs for the NHIF are "Drugs for home treatment" and "Hospital care".

Forecasts based on the model are still being developed. They critically rely on assumptions and parameters which need to be validated. If past trends are simply projected forward, preliminary results suggest – as other studies have done before - future health care cost pressures could threaten the integrity of the government's medium term macroeconomic framework.

It is critical to underline that ultimately, the Government has the capacity to keep any NHIF deficit in check by imposing strict caps, reducing or rationing benefits, implicitly or explicitly. In other words, potential deficits may never materialize. This will most likely lead to further shifts towards private and out-of-pocket spending, further increases in poverty and diminishing financial protection.

In any case, the model will provide a much needed analytical tool to assist in the fiscal management of potential threats to public finance as it highlights the underlying cost drivers that are at work and remain under-managed.

Fiscal space

Bulgaria was seriously affected by the global economic crisis and continues to face a challenging macroeconomic environment. Structural health sector specific cost pressures could potentially adversely affect the fiscal balance. The IMF projects that excess health care pressures could added 1.3 percentage

points to GDP in public health spending by 2030 and 3.2 percentage points by 2050 (an amount equivalent to 45 percent of Bulgaria's current GDP).

Bulgaria's income level, future fiscal situation, and current macro management objectives basically preclude significant revenue increases, future borrowing, and grants. In particular, while Bulgaria gets high marks for macroeconomic management in terms of controlling its expenditures and debt, limited economic growth prospects, coupled with its already high revenue and spending levels, limit significant increases in revenue and overall expenditure effort in the medium term. As an EU member state Bulgaria is not a candidate for development assistance. It receives EU funding, but health is not a major priority for these funds. Given its challenging macroeconomic environment and prudent fiscal management policies, borrowing is not a likely fiscal space option. Thus creating fiscal space for health or indeed any other government programs will largely depend on the country's ability to achieve efficiency gains in health and/or other sectors, and/or greater prioritization of health in the budget.

Efficiency gains in the health sector could lead to significantly better outcomes and could offset the need to increase expenditures substantially. Measures to reduce costs and improve efficiency revolve around the implementation of reforms in service delivery and include the implementation of a technically driven hospital rationalization plan, strengthening alternatives to hospital based care, and addressing human resources constraints by adjusting the financial factors and other incentives needed to retain trained health workers in Bulgaria.

Another fiscal space option is to increase the share of public expenditure going to health. However, Bulgaria's budget share going to health is already 12 percent, which is above average for its income level. Moreover, its current overall government expenditure effort is high given its income level. Health policy makers would need to convince the Government that the net social benefits of increases in health spending were greater than their costs and greater than the potential net social returns in other public sectors as well as the private sector. This may be a hard sell given the already high health spending levels and the significant inefficiencies in the health system.

Assessment of the health insurance information system

A well-functioning, modern, integrated and reliable health management information system (HMIS) is crucial to the operation of any modern healthcare delivery system, and perhaps equally indispensable to the operation of smoothly functioning health financing processes. As part of the health financing diagnostic, this report also assesses the readiness of the existing information systems, and in particular of the health insurance information ecosystem, to accommodate any significant changes to functionality or transaction load that might be precipitated by changes to the health financing scheme, provider payment methods, or health policy more broadly.

A health insurance information ecosystem has four main components which must all operate adequately and reliably: (i) Health Data Dictionary defining a language common to all stakeholders, (ii) Provider Information Systems, (iii) Payer Information Systems, and (iv) transaction links between providers and payers.

The current situation of the health insurance information ecosystems

In Bulgaria, Provider Information Systems function adequately given the demands currently exerted on them. Providers seem relatively satisfied with the systems in place. In particular, they are able to send claims electronically to the NHIF for payment, which is the most crucial requirement related to the health financing function. The dominance of a small number of competent vendors has helped move along the state-of-the-art in hospitals and at other health facilities.

Health information system standards (the repository for which is the "Health Data Dictionary") will require considerable further attention in order to increase interoperability between the various systems. De facto standards have usefully emerged as a consequence of the small number of vendors of Provider Information Systems. However, a more top-down approach will be needed to continue their development into the future. This will need to be overseen by the Ministry of Health and involve as many as possible of the various stakeholders in the health industry, including the private sector.

The complex issue of whether to keep the existing CCP method of encoding hospital cases for payment or moving toward DRG case-mix encoding will continue to require thoughtful discussion. Looking at this question squarely from an information systems perspective, the adoption of diagnostic related group based payments would facilitate the move to more automated adjudication of claims, which could increase productivity, accuracy and consistency of adjudication, as well as likely lower the administrative burden.

Regarding the status of Payer Information Systems, the Health Insurance Information System (HIIS) at NHIF does not function adequately and is in need of urgent attention. It is slowly deteriorating for lack of adequate support and cannot even handle NHIF's current business needs. It lacks comprehensiveness and it can only produce routine monitoring reports that revolve around the payment and administrative control functions. The system cannot perform other basic functions, such as monitoring the insured population (beyond knowing a person's insurance status on any given day), the eligibility category of insured individuals, or the utilization of care across settings and over time for specific patients (and thus groups of patients). It does not appear equipped to respond to any significant reorganization in information processes, take on additional responsibilities or transaction loads, or offer additional services such as improved reporting or analytic functions that are crucial for the sustainability and viability of the NHIF.

The Future of Provider Information Systems

Like all countries, Bulgaria now is at the cusp of dealing with the following two issues: the electronic medical record (EMR) and the improvement of upward and downward referrals. The national EMR would become the receptacle for all health information in the country, theoretically accessible by any accredited stakeholder anywhere, any time. This is the ultimate goal of provider information systems. The need for a unifying EMR flows from the fact that the handoff (referral) of patients between lower and higher levels of care remains problematic. The current referral forms are too limited and do not contain enough information to ensure an efficient hand-off from one facility to another. Similarly, the downward referral (returning a patient back to primary care, for example) is even more problematic. The Discharge Summary is often inadequate to ensure the desired continuity-of-care between levels once the patient arrives "home" at a lower level of care.

There is also room for improvement when it comes to connectivity links between providers and the NHIF and between both of these parties and the MOH itself. The health information network that currently exists in Bulgaria may not be sufficiently robust to support multiplicity of payer and provider

transactions needed for the efficient and effective functioning of the NHIF in achieving its basic health system objectives. A more centrally managed network (a so-called "star network") overseen by a Network Management Center seems advisable.

The Future of Payer Information Systems

Beyond the immediate crisis concerning the current system at NHIF, which needs to be addressed and mitigated in the near future, the challenge remains to plan for the next generation of health insurance information system. Long-term issues relate to the system's comprehensiveness, modifiability and expandability, and ability to be integrated with other systems more easily. The HIIS must span a larger universe if it is to have enough information to determine whether a claim is complete, whether it is legitimate, whether the medical services were necessary and appropriate, etc. This means that the HIIS will one day have to be attached to the national EMR. It also means that data from the HIIS must naturally feed into actuarial projections and other financial forecasting systems.

The next HIIS will need to be considerably more robust than the current system in place at the NHIF. It will need to have far more robust forecasting and financial modeling capabilities. It will need to have better workflow management so that the "factory-like" processing of claims results in accurate and timely payment, is regularized, and is far less labor-intensive than today. Finally, the next HIIS will need to be able to accommodate a far larger variety of provider payment methods - which might include the DRG, hybrid capitation, incentives and pay-for-performance (P4P), etc.

Since systems development efforts can take several years, the time to address the future of the HIIS in Bulgaria is now.

Summary assessment of the Governance, Management, and Performance of the NHIF

Like all countries, Bulgaria's health financing system embodies major transformations over its Shemasko Model predecessor. It also faces serious challenges, which in part result from the country's demographic and epidemiological transitions and also from its challenging economic situation. Bulgaria spends more than other income comparators. Total and private spending are higher and public spending is similar to global averages. Health outcomes are average and financial protection at both macro and micro levels is poor, inequitable, and declining. Given Bulgaria's already high fiscal effort and challenging future growth prospects, sustainability will be a challenge. Efficiency gains are the key area for generating future fiscal space and such gains can be found in NHIFs purchasing procedures for services and medicines, better rationalization of the benefits package on the basis of cost-effectiveness and financial protection criteria, holistic control over and enforcement of financial and clinical policy levers that affect spending, etc. Thus assessing the structural and operational performance of the NHIF is essential for establishing the health financing reform baseline. Indeed, as the core health financing institution, the NHIF should help design, and will in all likelihood be driving implementation of any major health financing policy change.

The efficient management of mandatory health insurance funds such as the NHIF requires a number of standards of good governance to be met. In particular, the rules and regulations governing the system must be stable and consistent. Further, the direction (stewardship) of mandatory health insurance, its stability and independence must be influenced by coherent decision making structures.

Pulling together the findings of this report suggests that these conditions are not adequately fulfilled in Bulgaria. On paper, the NHIF is ultimately accountable for meeting its obligations to provide the services included in the benefits package to all insured within the allocated budget. In order to assure their solvency, mandatory health insurance funds typically are able to use a number of policy levers, which can be organized in three broad categories.

- ✓ On the revenue side, the adjustment of contributions and the management of reserves. The analysis of the laws and the practice show that NHIF has no or little effective control over its revenues and reserves.
- ✓ On the expenditure side, a first critical lever is the management of the "entitlements" or "benefits" guaranteed to the insured. Again, the report shows that many of these elements are set by the law and through ordinances and not directly by the NHIF. In fact, other institutions including the Ministry of Health and the Pricing Council (for medicines) set most parameters. At the same time, neither of these institutions is accountable, responsible, or has the necessary expertise for ensuring that the NHIF budget is sustainable. In addition, there is no evidence that these decisions are based on thorough economic and financial analyses of their current and future implications for the NHIF budget or their impact on consumers. In many respects, the responsibility for defining the contour of the benefits package and the accountability for actually delivering it within a given budget are not aligned in Bulgaria.
- ✓ Contracting and payment methods constitute the second category of levers for managing expenditure. Yet, the analysis in the report shows that the current payment and contracting methods contribute to reinforcing some of the features of service delivery that undermine NHIF's capacity to cope effectively and sustainably with the burden of NCDs, and in particular the widening imbalance between inpatient and outpatient care. Further, the NHIF faces important barriers to becoming an 'active' purchaser, including the fact that it cannot selectively contract providers.

In summary, the NHIF only has a limited set of instruments to effectively fulfill its public financial management responsibilities as the country's single universal mandatory health insurer and is hindered in the use of those that are available to it.

The fragmentation and misalignment of roles and responsibilities between the NHIF, MOH and MOF need to be resolved if only because they perpetuate a costly and inefficient system. Future cost projections for Bulgaria and virtually all EU and many emerging market countries suggest that the financial pressure generated by the current service delivery and payment arrangements, coupled with demographic and epidemiological changes, will not abate, and it will be important to promote service delivery reforms that will help curb costs and use the NHIF to leverage their implementation. Ultimately, a decision needs to be made about which organization (NHIF, MOH, MOF) has the final authority and the responsibility for ensuring the system is – and remains – efficiently run and financially sustainable.

The assessment also suggests that even if conditions were met for the core insurance and public financial management functions to be organized coherently, the system would still need to develop some essential tools in order to implement them: the NHIF's health information system severely compromises its operational effectiveness and is inadequate to face future needs, economic and financial instruments are underused and there are major information gaps.

In conclusion, the fragmentation and misalignment of roles and responsibilities precludes an effective holistic approach to health financing policymaking and implementation. On the one hand, some of the basic health policy goals embodied in the country's Health Strategy including the need for more primary

care, prevention and management of NCDs, and long-term care (LTC), are not fully analyzed in their health financing dimensions. On the other, some core health financing issues receive very limited attention, including the impact of limitations to the population's coverage and the diminishing financial protection.

Introduction

Assignment

1. In August 2014, the Government of the Republic of Bulgaria and the World Bank entered into an agreement generally referred to as the Health Financing Reimbursable Advisory Services (RAS). The objective of this RAS is to support the Government as it lays the groundwork for implementing its National Health Strategy 2014-2020. Specifically, the Bank is helping the Ministry of Health develop, evaluate, and implement options in the area of health financing to improve the efficiency, equity, financial protection, and long-term sustainability of the health system.

2. In order to achieve the stated objective of developing policy options for health financing, the first step is to assess how the Bulgarian health financing system operates and performs. The enclosed report presents this diagnostic and the following section briefly describes the approach followed to establish it.

Approach to health financing and health systems analysis

3. Over time, health systems research has moved away from discussing reforms in terms of how close they bring a given health system to some form of "model" or at least "archetype". Today, the organization of health systems is analyzed by looking at how they setup a set of core "functions" and their performance is measured against universally accepted goals all health systems are expected to achieve. Further, increasing attention is being paid to the "science of delivery", in other words, how the rules or principles guiding the system are being implemented in practice in a given context. The following section briefly describes in more specific terms the framework which will be used to describe how, in the context of Bulgaria's socioeconomic, demographic, geopolitical, governance, and overall health system's configurations, the health financing function is organized and how its performance will be assessed.

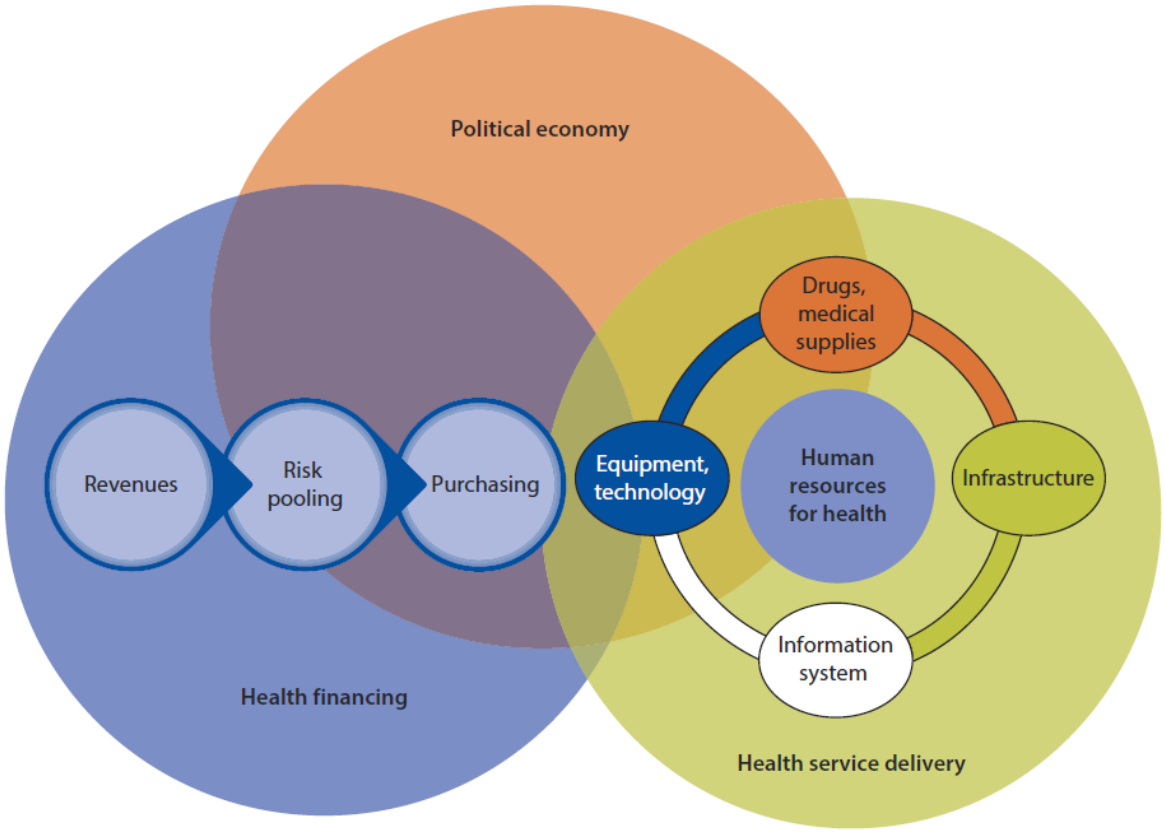
Goals and objectives of health systems and health financing systems

4. In order to evaluate the performance of Bulgaria's health financing system, it needs to be understood in the context of the goals and objectives it is designed to achieve as well as its interactions with the other critical components of the health system. Specifically, this document employs the globally accepted WHO/ World Bank taxonomy of health systems and the related **goals** and objectives of health financing and health systems which are: (i) improving health outcomes, (ii) assuring financial protection, and (iii) being responsive to consumers in an equitable, efficient, and sustainable manner.[13]

5. Figure 1 below displays the basic **functions** of a health system which are: health financing; health services delivery -- the components of which are health infrastructure, human resources for health, information, drugs, medical supplies, equipment, and technologies; and, political economy (which includes leadership, governance, and stewardship). All of these components interact and determine how well a health system performs its ultimate goals of improving health outcomes, assuring financial protection, and being responsive to consumers.

[13] WHO 2000, 2007, 2010, WB 2006, Maeda et al. 2014.

Figure 1: Health system components and interactions



Source: Maeda et al 2014

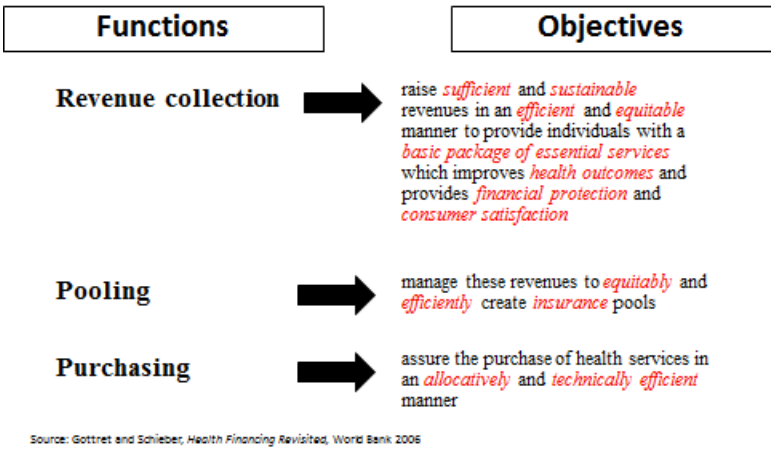
6. Kutzin (2001) proposed a framework to analyze health care financing arrangements that distinguishes three sub-functions:

- ✓ the **collection of revenues** that will ultimately be used to purchase health services,
- ✓ the **pooling** of these funds, in other words, the way the financial flows are organized, and
- ✓ **purchasing of health services**, which describes the interaction between the intermediaries who manage the prepaid/pooled funds and those who deliver the services.

7. Figure 2To achieve the basic health system goals enumerated above, these key sub-functions of a health financing system need to be implemented in equitable, efficient, and sustainable manners as shown in Figure 2. In particular, countries need to raise sufficient revenues in an equitable, efficient (which minimizes economic distortions from the revenue raising instruments), and sustainable manner to provide their populations with a basic benefits package (BBP) that maximizes health outcomes, assures financial protection, and is responsive to consumers. Revenues need to be pooled equitably and efficiently (in terms of both administrative overheads and insurance underwriting costs) to provide individuals with health insurance coverage against large, unpredictable, impoverishing medical care costs. Health services need to be purchased and provided equitably and efficiently. Thus, equity, efficiency (allocative and

technical), and sustainability are sub goals inherent for the achievement of the overall health outcome, financial protection, and consumer responsiveness goals.

Figure 2 Health financing functions and objectives



From measuring performance of health systems to providing policy recommendations

8. In the context of the above framework, for each of the health and health financing functions and sub-functions, a fairly standard set of indicators are generally available to assess the performance on a given dimension. To give an example, one indicator used to determine the degree to which a system provides financial protection, is "impoverishment due to out-of-pocket payments". Based on household budget surveys, this indicator roughly determines what proportion of the population would not be poor if they did not have to pay for health services out of pocket. The first step to assessing performance is thus to determine which indicators for which dimensions can be computed given the information available.

9. For most of health system performance indicators however, there is no such achievement as a "perfect score", which is why benchmarking is a core technique used to assess performance more meaningfully. Benchmarking, in Bulgaria's case, will involve (1) assessing levels and trends over time relative to similar neighboring countries and relative to EU12 and EU15 averages, and (2) benchmarking Bulgaria's performance on readily measurable health financing parameters and health systems outcomes/inputs against other comparable income and health spending countries. This is generally done by estimating the average relationships for all countries globally and assessing the country in questions performance/divergence from the global averages (i.e., the point on the global average regression line for comparable income countries), keeping in mind that there is nothing right or wrong about a global average. Nevertheless, large deviations from the 'average' performance of similar income comparators do provide some indications of areas that may require more in-depth analyses and changes in health policies.

10. One must of course keep in mind the limitations of such analyses as there is no single measure of a health financing system or indeed of a health system and there are numerous country specific

characteristics that can influence 'performance' (e.g., age distribution of the population, geography). Performing numerous 2 by 2 comparisons of outcome, input, and financing elements, and adding micro studies of particular aspects of the system and the rich health policy literature on Bulgaria, one can get an objective overall picture of the health system's performance along a number of critical policy dimensions and their likely implications for health financing/health system goal performance and needed areas to focus reforms.

11. While some limited comparative analyses have been done before for Bulgaria, this report will provide a comprehensive analysis using the latest available heath spending and outcome information from the WHO National Health Accounts (NHA) data base, the World Bank's World Development Indicators (WDI) data base, and the IMFs latest Regional Economic Outlook (REO) and macroeconomic statistics as well as the most recent household budget surveys to provide a more in-depth micro analysis of equity and financial protection performance.

12. Once performance along these various dimensions is assessed, the next step is the identification of root causes. The attribution of a “performance result” back to a given function and thus a “root cause” can appear straightforward. For instance financial protection is generally the domain of health financing, and more specifically the result of revenue raising and pooling. However, as has been well articulated in the health systems strengthening and health financing literatures, all health system and health financing evaluations are difficult for a variety of reasons including: definitional (e.g., defining specific key health financing components), measurement problems (e.g., measuring health outcomes or health insurance coverage), attributing causality in complex interactive systems, separating demand from supply side factors, and controlling for the impacts of exogenous non-health systems' related factors such as education, water, sanitation, infrastructure, etc. Attributing a performance result to a specific health system feature thus requires (i) a solid understanding of the country-specific context which covers how the system is organized in principle, as well as how these principles are operationalized in practice, and (ii) a global knowledge of which system features are generally associated with better or worse performance.

13. Once the diagnostic work is complete, the framework described above can also be used to evaluate policies proposed by various stakeholders. By reviewing how a given policy will modify how each sub-functions is performed, and drawing evidence from international experience of how this can be expected to help achieve a specific goal, one can provide a technical view of how relevant the policy is to help bridging specific performance gaps identified in the context of Bulgaria and what successful implementation might require. Policy makers thus need to focus on the basic objectives they want to achieve in the context of Bulgaria’s unique demographic, epidemiological, political, geographic, institutional, and economic contexts, and must consider both the institutional arrangements and economic incentives inherent in their policy choices in terms of both health financing and overall health system impacts.

Outline of the report

14. The diagnostic presented in this report, includes:

- ✓ selected elements of the underlying demographic, labor market, economic and health system context which are necessary to frame a discussion on health financing, (Chapter 1)
- ✓ a description of the health financing system which outlines its main features, presents some calibration elements and sheds light on how the system operates in practice. (Chapter 2)

- ✓ an empirical assessment of how well Bulgaria's health financing system performs against the universally accepted goals and objectives of improving health outcomes, financial protection and consumer responsiveness in an equitable, efficient, and financially sustainable manner (Chapter 3)
- ✓ a discussion of some constraints to reforms including fiscal space, information systems and the current governance framework of the NHIF (chapter 4).
- ✓ A summary of the findings of this report put in the context of a broader analysis of the strengths and weaknesses of the health system (chapter 5)

Chapter 1. Health financing in context

1. This chapter discusses a number of epidemiological, demographic, and economic trends and features of the Bulgarian health system that point to a number of current inefficiencies and at the same time pose challenges for publicly financing adequate health services for Bulgaria's population going forward. Since its EU accession in 2007, Bulgaria has not been able to close gaps in health outcomes or health system performance indicators, despite income convergence with the rest of the EU. Its population is aging and remains relatively poor. Thus, health costs can be expected to rise, but prospects for increasing revenue generation will be limited.

1.1. Health outcomes

Figure 3: Life expectancy at birth relative to income and expenditures, 2012

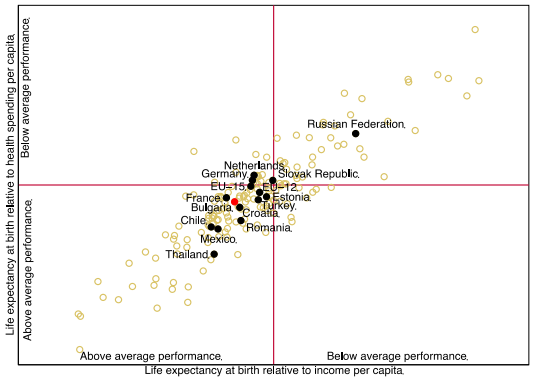
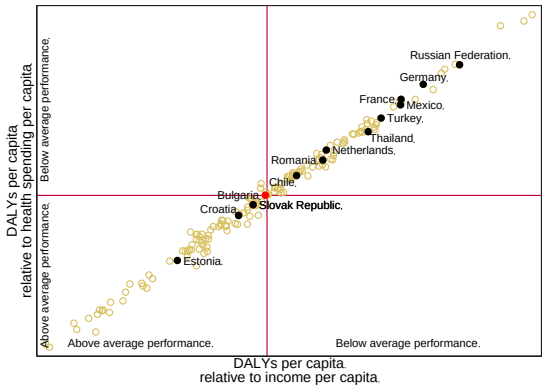


Figure 4: DALYS per capita relative to income and expenditure, 2012



Source: World Development Indicators and WHO NHA, 2014

2. On a global scale, current indicators for life expectancy and disability-adjusted life years (DALYs) per capita in Bulgaria suggest average to above average performance in comparison to other countries with similar levels of income and health spending per capita (**Figure 3** and **Figure 4**). Indeed for outcomes such as maternal mortality, Bulgaria has been making steady progress and has converged to levels of EU 15 countries (**Figure 5** and **Figure 6**). As shown in the Annex[14], despite the significant reduction, however, Bulgaria's infant mortality rate is still more than three times higher than the EU-15 average of 3.2 infant deaths per 1000 live births and almost twice as high as the EU-12 average of 5.5 infant deaths per 1000 live births.

[14] An annex to this report presents additional analyses international comparisons and trends

Figure 5: Maternal mortality relative to income and expenditure, 2010

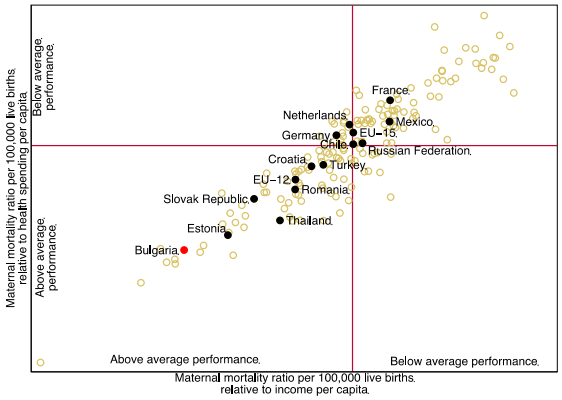
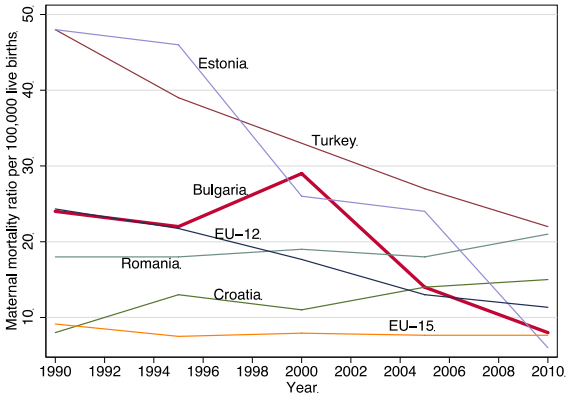


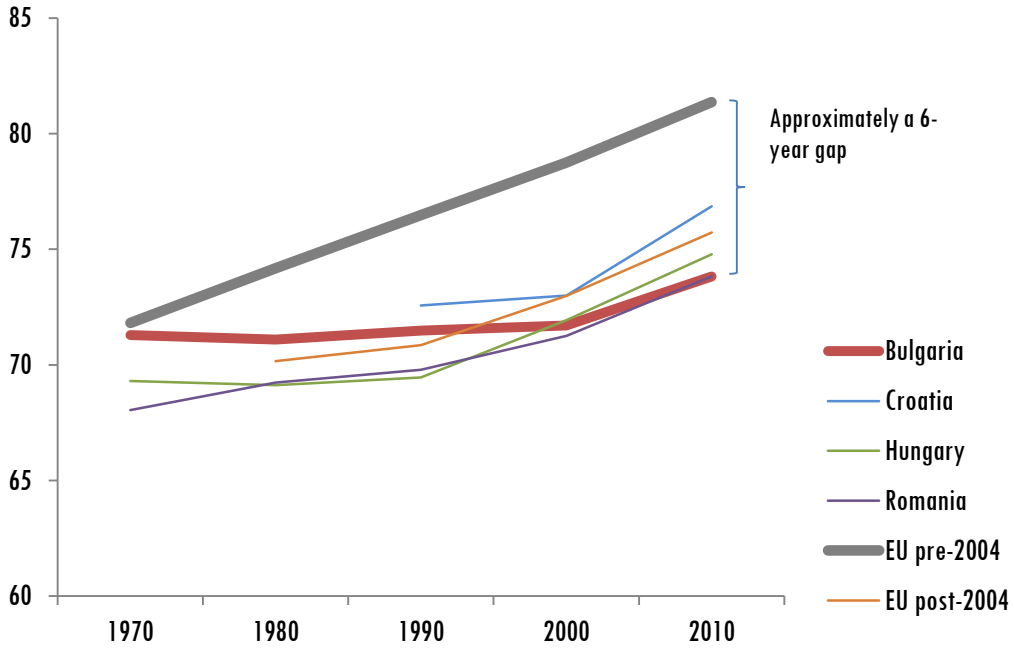
Figure 6: Maternal mortality from 1990 to 2010



Source: World Development Indicators and WHO NHA, 2014

3. An examination of an aggregate indicator like life expectancy at one point in time, however, hides poor performance in the specific disease conditions that contribute the most to premature mortality and high rates of morbidity. In fact, since its accession to the EU, Bulgaria has failed to catch up with EU-15 countries in overall life-expectancy (Figure 7), despite a convergence in income, and it has even been losing ground to countries it had once outperformed in the past.

Figure 7: Life expectancy, 1970-2010



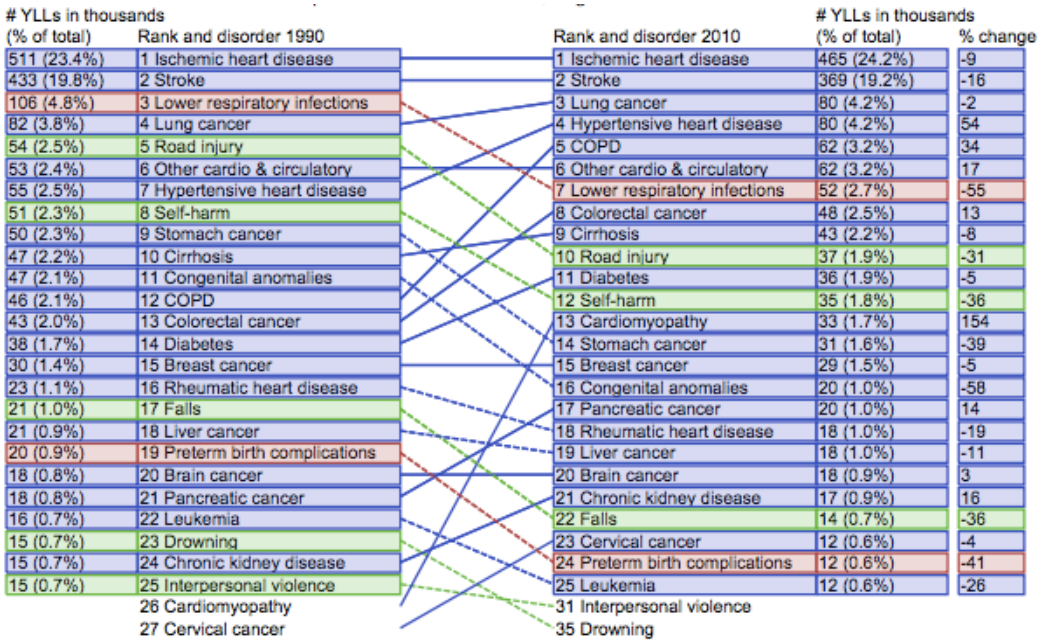
Source: WHO Health For All Database, 2014

4. For example, in 1970, life expectancy in Bulgaria was virtually equivalent to what prevailed among EU-15 countries and was much higher than in Croatia, Hungary, and Romania. By 2010, however, life

expectancy in Bulgaria trailed even Romania's. In 2010, life expectancy at birth in Bulgaria lagged behind the average in the European Union (EU) by approximately 6 years, a gap that has remained fairly constant since 2004. In fact, life expectancy has improved only slightly since the 1960s[15].

5. This relatively good performance in dealing with conditions such as maternal mortality that co-exists with slow gains in life-expectancy can perhaps be explained by Bulgaria's slow progress in controlling chronic diseases during its epidemiological transition. According to the most recent Global Burden of Disease Study, Bulgaria's disease burden has been transitioning away from infectious disease towards non-communicable diseases (NCDs). In fact, by 2010 almost 94 percent of deaths in Bulgaria were caused by NCDs (Figure 9). Cardiovascular disease in particular - heart attacks, heart failures, and strokes - accounts for more than 66% of all reported deaths in Bulgaria (Figure 8), with 24.2 and 19.2 percent of years of life lost (YLLs) attributed to ischemic heart disease and stroke.[16]

Figure 8: Causes of premature death (Years of Life Lost), 1990 vs 2010

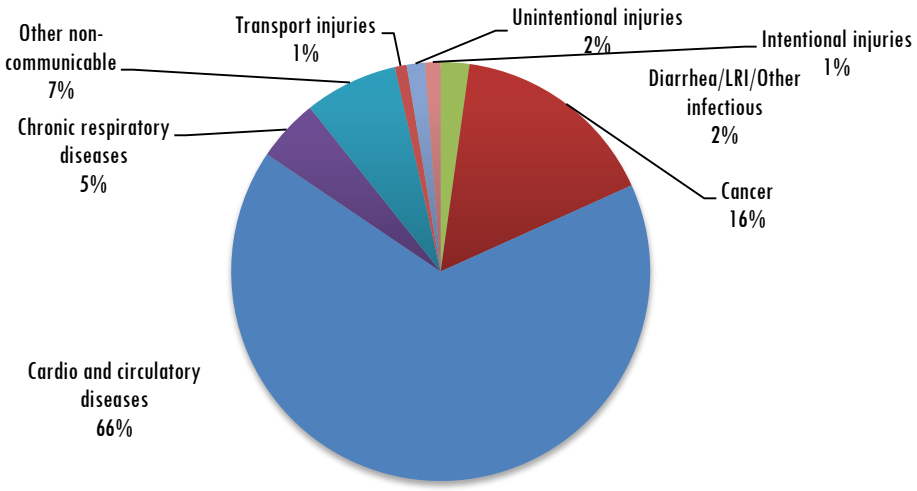


Source: IHME Global Burden of Disease (2014)

[15] World Bank (2013) *Mitigating the economic impact of an aging population: options for Bulgaria*. Washington, DC : World Bank. http://documents.worldbank.org/curated/en/2013/09/18262916/mitigating-economic-impact-aging-population-options-bulgaria

[16] The mortality figures from 2010 disaggregated by cause of death in **Figure 9** differ only marginally from the National Statistical Institutes 2012 figures in *PUBLIC HEALTH STATISTICS, Bulgaria 2013, Annual*

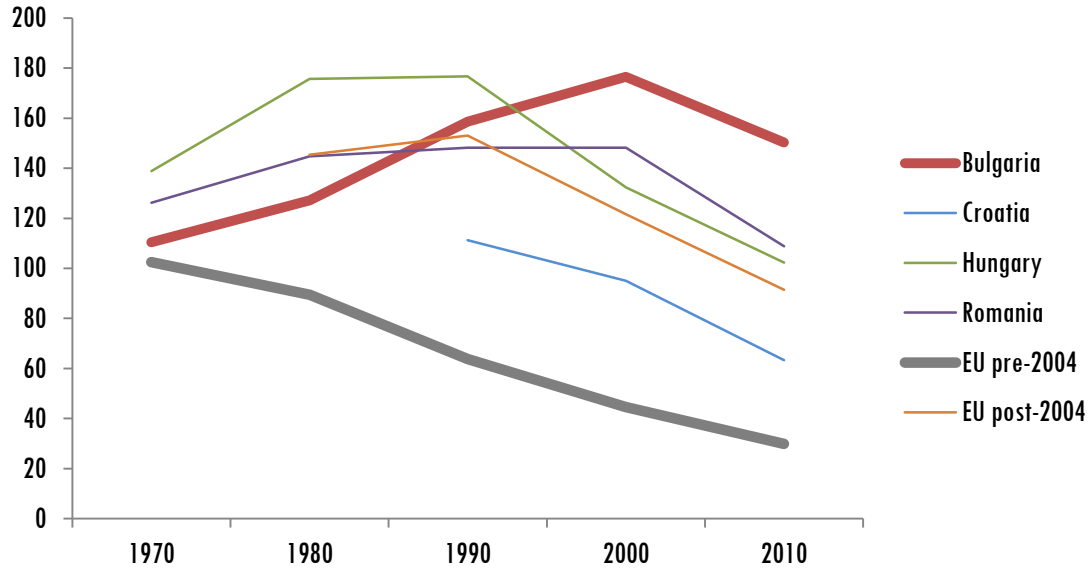
Figure 9: Causes of death in Bulgaria (2010)



Source: IHME Global Burden of Disease (2014)

6. Similar to the case of life-expectancy, Bulgaria has lost ground when it comes to mortality due to diseases of the circulatory system (**Figure 10**). Standardized death rates from cardiovascular disease more generally far exceed average rates in the EU, even when the comparison is restricted to countries that joined the EU after 2004.

Figure 10: Standardized death rate for disease of circulatory system (0-64 yrs) per 100,000

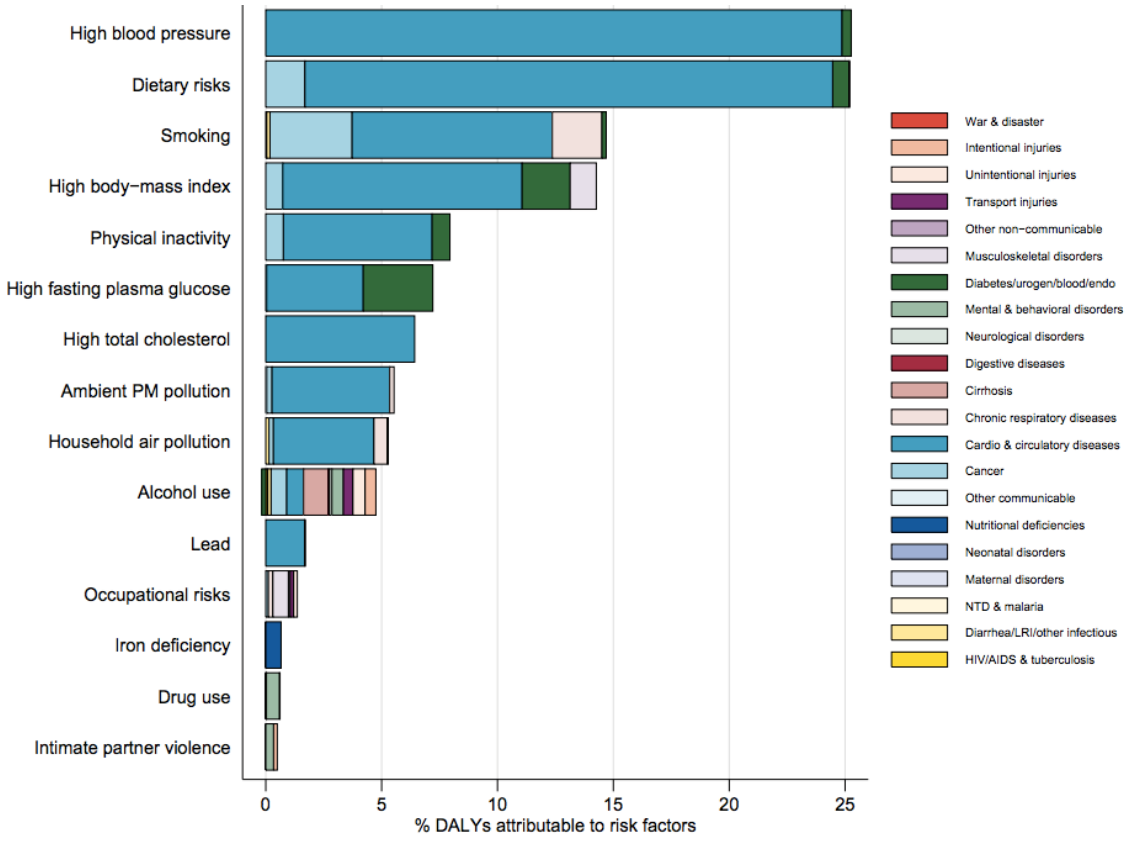


Source WHO Health for All Database, 2014

7. Cardio and circulatory diseases also contribute significantly to morbidity rates. In Bulgaria, almost 37 percent of disability-adjusted life-years (DALYs) can be attributed to cardio and circulatory diseases, which represents the highest share among the EU-28 countries. Other main causes of DALYs include cancer (13 percent), musculoskeletal disorders (9.8 percent), injuries (8.3 percent) and mental and behavioral disorders (IHME GBD, 2014).

8. An examination of the risk factors associated with this high disease burden suggests that they could be adequately treated and managed with appropriate primary care services, including health promotion and prevention activities. The majority of DALYs can be attributed to high blood pressure, dietary risks, smoking, and high body mass index (Figure 11). The latest available data indicate that in 2008, 41 percent of the adult population (over the age of 25) in Bulgaria suffered from raised blood pressure (SBP ≥ 140 or DBP ≥ 90) (WHO Global Health Observatory, 2014).

Figure 11: Burden of disease in Bulgaria attributable to 15 leading risk factors in 2010, expressed as a percentage of DALYS



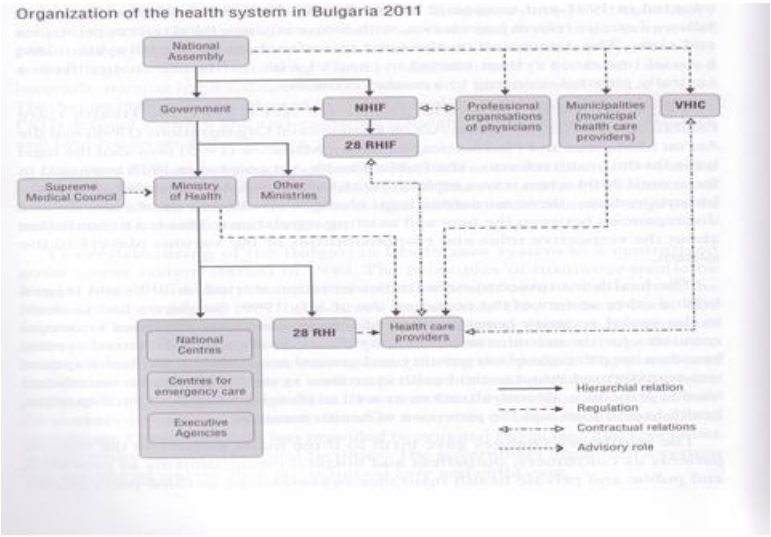
Source: **IHME Global Burden of Disease (2014)**

1.2. Health system design and efficiency of service delivery

9. The current health system, however, does not appear designed for Bulgaria's disease profile and does not provide the right mix of services (The health system's main features are summarized in Box 1, the 2012 HiT provides more detail).[17]

Box 1: Bulgaria's health system

The health system in Bulgaria is profoundly diverse with a mix of public and private, centralized and decentralized features among financiers and providers of health care. At the center of the public funding system lies the National Health Insurance Fund (NHIF), meant to cover all citizens, and through which the bulk (about 70%) of public resources is channeled into the health system. Health services are delivered by a network of providers which operate in the public or in the private sector. Outpatient care is provided in single and group practices, and in medical, diagnostic, and dental centers, most of which are private. Hospitals operate as commercial companies and are predominantly owned by the central and local governments. Around 10 percent of the beds and a third of hospitals are private. Virtually all providers have a contract with the NHIF. General practitioners are primarily paid based on capitation and other outpatient services on a fee basis. Hospitals are paid for services on the basis of Clinical Care Pathways (CCPs) – which are case-based payments. Private expenditure - almost exclusively out-of pocket- represents more than 48% of the money spent on health in Bulgaria. The organization the health system is depicted in the following graph.



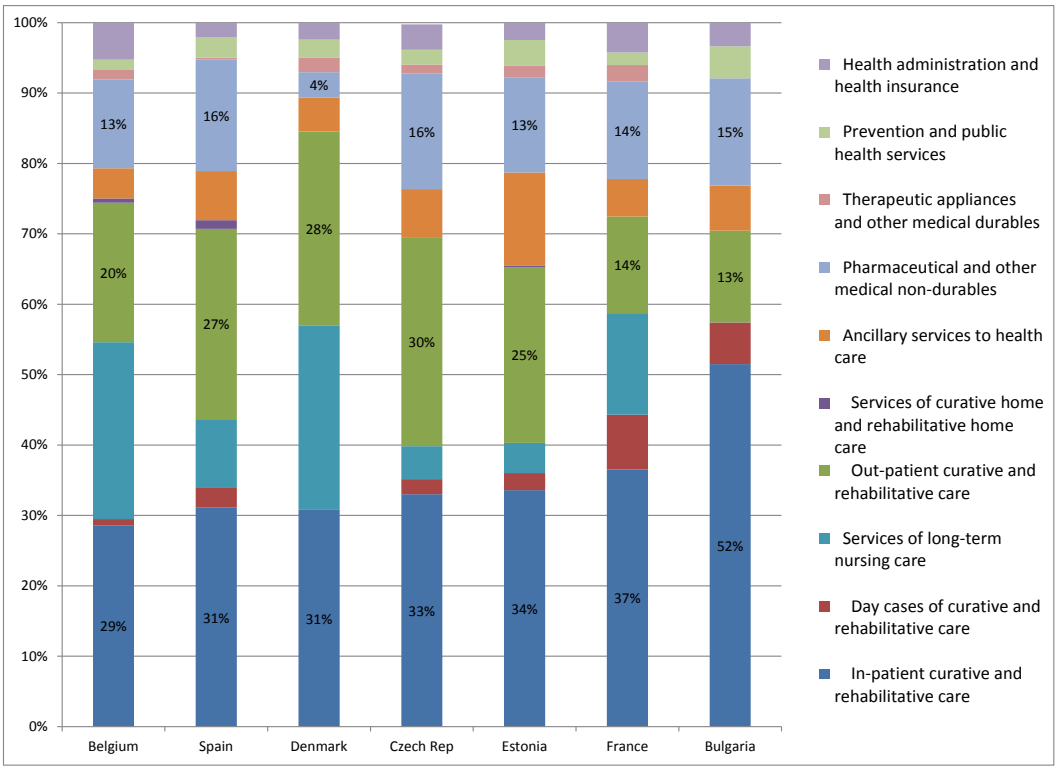
Source: A. Dimova et al., *Bulgaria Health System Review*, European Observatory, Health System in Transition, Vol. 14 No. 3, 2012.

[17] A number of recent publications have described the health system organization in detail (HiT) and have discussed the challenges posed by the organization of service delivery (Sanigest 2008, HiT, World Bank, 2013).

10. The treatment and management of non-communicable diseases require a service delivery model centered around primary care, a cadre of trained primary care physicians, and payment mechanisms that reward prevention, early detection, and long-term case management as well as coordination of care. Bulgaria's health system, provider payment processes, and utilization patterns, however, appear oriented towards inpatient treatment.

11. The examination of public spending across countries, for example, suggests that Bulgaria spends comparatively more on inpatient services and, at the same time, comparatively less on outpatient care (**Figure 12**) which represents 52 percent of current expenditure, close to 20 percentage points above the share dedicated to hospitals in the other countries (and spends more than most countries even controlling for income).

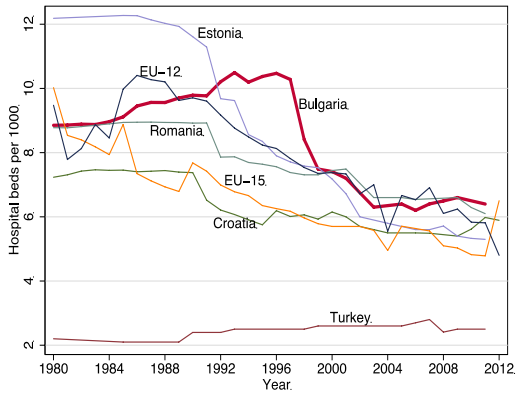
Figure 12: Public expenditure by category of health service in Bulgaria and selected OECD countries



Source: OECD health and Bulgaria NHA. Choice of countries largely driven by data availability.

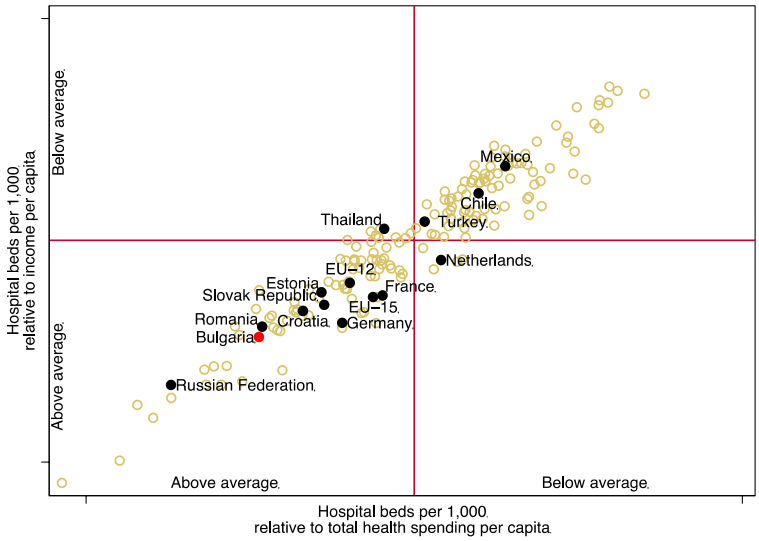
12. Hospital capacity and hospitalization rates rank above average, even when comparing Bulgaria to countries of similar levels of income and health spending. The number of hospital beds per 1,000 people has come down considerably from a peak in the 1990s (**Figure 13**), but this decline started to reverse approximately ten years ago. Today, the number of hospital beds is significantly higher in Bulgaria than it is in other countries given income and health expenditures (**Figure 14**).

Figure 13: Hospital beds per 1,000 from 1980 to 2012



Source: World Development Indicators and WHO NHA, 2014

Figure 14: Hospital beds to population ratio relative to total health spending and income



Source: World Development Indicators and WHO NHA, 2014. Beds and GDP per capita data are for the latest/earliest available year.

13. In addition, the distribution of hospitalizations across hospitals also suggests considerable excess capacity and fragmentation (**Table 1**, **Figure 15**, **Figure 16**). The average length of stay in Bulgaria has been decreasing steadily since 2000 and is probably on the low side compared with the rest of Europe. [18] While such a decrease can be consistent with advances in medicine, over the same period, the trends in occupancy rates of hospital beds clearly point to systemic inefficiencies deriving from the large number of beds and hospitals in Bulgaria. It was around 65 percent in 2000 and rose to 80 percent – a norm by international standards. The current level of 70 percent is very low, especially considering the large proportion of care which could be provided outside of the hospital.

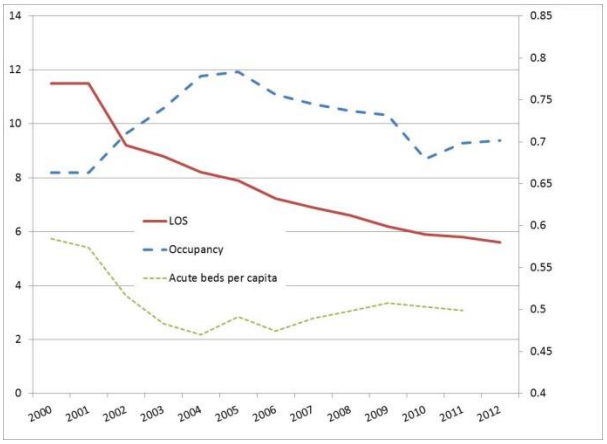
[18] Problems of definition preclude direct comparisons.

Table 1: Number of hospitalizations per year across hospitals

Number of hospitalizations	Number of hospitals
Less than 500	51
500 - 1,000	27
1,000 – 5,000	161
5,000 – 10,000	61
More than 10,000	53
Total	353

Source: NHIF data, author's computations

Figure 15: Bed occupancy and average length of stay, 2000-2012



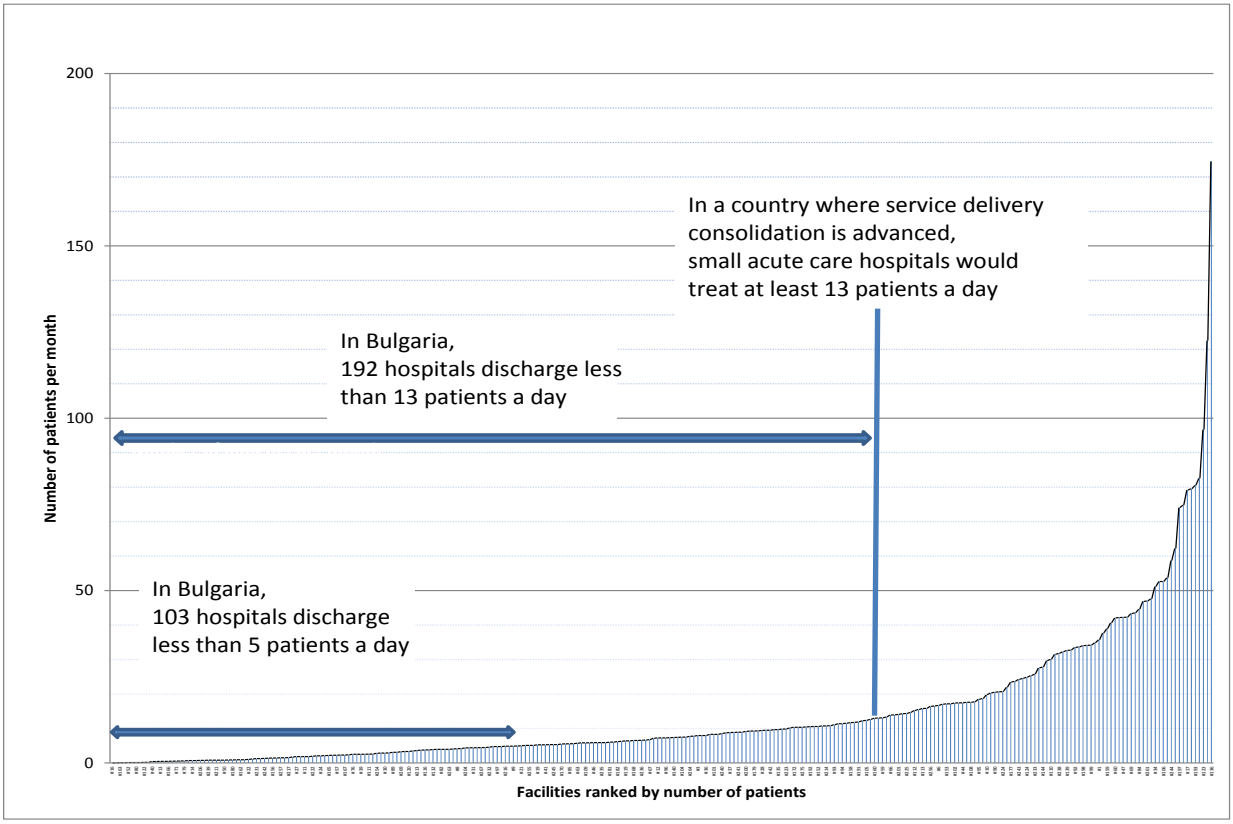
Source: Authors computation based on data from National Center of Public Health and Analyses

14. Evidence of fragmentation can also be illustrated from the distribution of discharges across hospitals (**Figure 16**). The three busiest hospitals in Bulgaria discharge more than 95 patients a day. At the other end of the spectrum, the first 103 facilities account for 5 percent of hospital stays in Bulgaria. Further, if the smallest acute-care hospital in Bulgaria had 130 beds[19], it could be expected to discharge around 13 patients a day. In Bulgaria, 192 (out of a total of 275) discharge fewer patients than that[20]. Thus, the hospital sector is composed of an exceedingly large number of facilities, many of which small, that account for very few admissions, and there appears to be considerable room for consolidation in the sector on efficiency and quality grounds.

[19] World Bank (2013). The assumptions underlying this simulation are plausible. For instance, in the Netherlands, in 2011, the smallest hospital has 138 beds (the threshold used here is 130). Historically, this was not the case: In the 50s, more than half of Dutch hospitals had less than 130 beds, but the system has since been profoundly remodeled. Other assumptions are as follows: the occupancy rate of beds is 70 percent (which is rather low – in 2008 in Bulgaria it was close to 76 percent) and each patient stays 7 days in the hospital (the average length of stay in Bulgaria in 2011 was 5.8 days).

[20] Even accounting for long term care hospitals (less than 35 out of 275) where stays would be longer than in acute care hospitals.

Figure 16: Number of patients per month across hospitals



Source: World Bank (2013). Data were from 2011-2012.

15. This extent of hospital fragmentation can be detrimental to economic efficiency and at the same time undermine quality of care. Some evidence that this is happening comes from standardized deaths rates for appendicitis and hernia and intestinal obstructions. Mortality for both conditions is particularly high in Bulgaria (**Figure 17**, **Figure 18**), which suggests that many hospitals may not be producing quality services. An analysis of 21,095 deaths registered in the NHIF databases in 2007 suggested that 6,954 (i.e., 33%) were avoidable according to the definition of amenable mortality[21].

[21] Sanigest (2008)

Figure 17: Standard Death Rate, appendicitis, 0–64, per 100 00s0, 2011

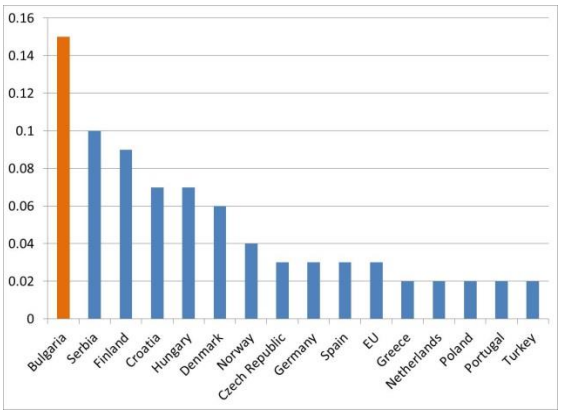
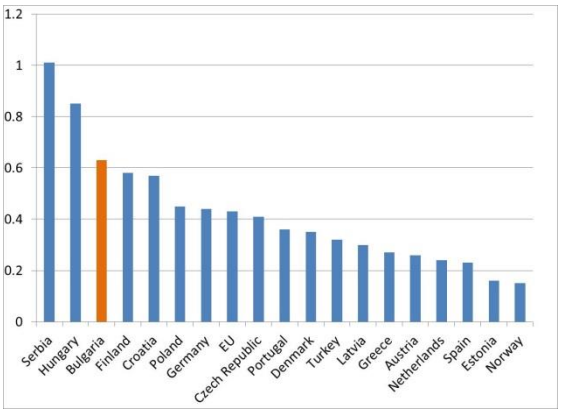


Figure 18: Standard Death Rate, hernia and intestinal obstruction, 0–64, per 100 000, 2011



Source: WHO Health For All database

16. This excess infrastructure has also been accompanied by a much higher than average utilization of hospital services. While hospitalization rates in the region have either stabilized or decreased over time, Bulgaria currently seems to be on an alternative path of increasing treatment in hospital settings (**Table 2**). In 2011, hospitalization rates in Bulgaria were nearly 40 percent higher than those in recent members of the EU. In contrast, outpatient contacts are relatively low in Bulgaria, with an average of 5.5 outpatient visits per person per year in 2011 (Atanasova et al, 2012), compared to an average of 7.23 in other countries that joined the EU after 2004 (WHO Health for All Database, 2014).

17. A 2013 analysis of hospitalizations in Bulgaria also suggests that at least 20 percent of procedures performed on an inpatient basis in hospitals in Bulgaria could have been completed in basic outpatient settings (World Bank, 2013). These hospital admissions for services which for the most part do not need to take place in the hospital do not even account for late-stage conditions like cancer, congestive heart failure, or diabetes-related amputations that should have been identified and treated in the primary care settings. The 2008 Sanigest study reported that 10% of all hospital admissions were due to ambulatory care sensitive conditions, a suggestion that patients are not receiving the care required at the primary care level to avoid unnecessary hospitalization.

Table 2: Inpatient discharges per 100

	1980	1990	2000	2010	2011
Bulgaria	**17.56**	**19.02**	**15.44**	**25.5**	**26.69**
Croatia	13.89	15.35	15.73	16.88	17.03
Hungary		21.76	23.56	20.27	20.42
Romania	22.99	20.13	21.22	23.56	21.61
EU pre 2004		16.64	17.53	16.77	16.75
EU post 2004	17.42	16.7	18.57	19.4	19.24

Source: WHO Health For All Database, 2014.

18. Indeed, available data suggest that the primary care sector in Bulgaria is not equipped to deliver the types of services required for non-communicable diseases that must be prevented, treated early, and managed over long periods of time. For example, coverage of preventive services is considerably lower in Bulgaria than in other EU countries, except for Romania (Table 3). Only 10 percent of women aged 50 to 69 years underwent a breast exam with a physician, while less than 20 percent of adult women had a cervical smear test. With the exception of Romania, these figures represent half or less of what has been attained in other new member states of the EU.

Table 3: Prevention and screening rates, 2008

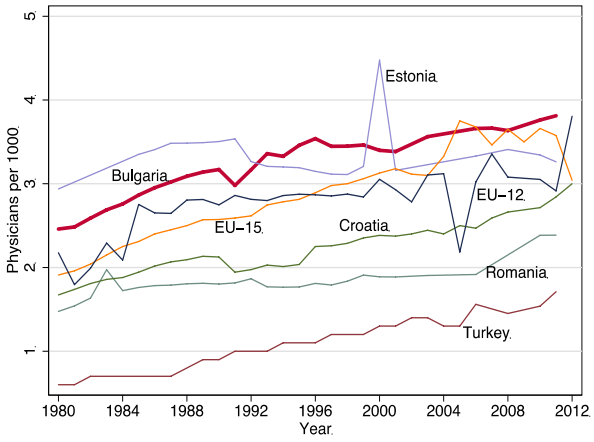
	Breast exam (women 50-69) (%)	Colorectal cancer screening age 50-74 (%)	Cervical smear test (women 20-69) (%)	Cervix Cancer death rate* (per 100,000)	Influenza immunization (%)
Bulgaria	10.3	8.5	18	7.9	4.8
Czech Republic	39.8	14.1	46.3	4.9	19.4
Germany	44.7	36.6	58.3	2.5	56.2
France	50.3	13.6	48.7	1.9	66.7
Latvia	23.1	8.5	41.7	5.9	2.9
Hungary	37.4	2.9	35.4	5.7	30.3
Poland	29.4	1.7	35.8	7.1	12.9
Romania	3.5	0.7	4.4	13.4	18.1
Slovenia	25.6	3.3	38.5	3.7	22.3
Slovakia	31.9	9.6	33.1	6.3	24.4

Source: Eurostat database. It is worth noting that the National Statistics Institute website publishes, based on the same survey, much higher estimates[22].

19. The deployment of human resources does not support a strong primary care sector, even though Bulgaria has no overall shortage of physicians, and in fact ranks above both the EU-15 countries (Figure 19) and other countries with similar income and health spending profiles (Figure 20). Both general practitioners and nurses are in short supply (Table 4). In fact, Bulgaria ranks among the lowest among European countries when it comes to the number of nurses, and outmigration has proceeded at a rapid pace in recent years, particularly among young health professionals (HiT, 2012). Moreover, only 5 percent of general practitioners have been trained in family medicine, and their average age exceeds 50 years. The aging of the overall physician population is also a huge concern. Chapter 3 will analyze how the relative dominance of inpatient services and poor coverage of primary care services can be explained in part by incentives created by provider payment mechanisms.

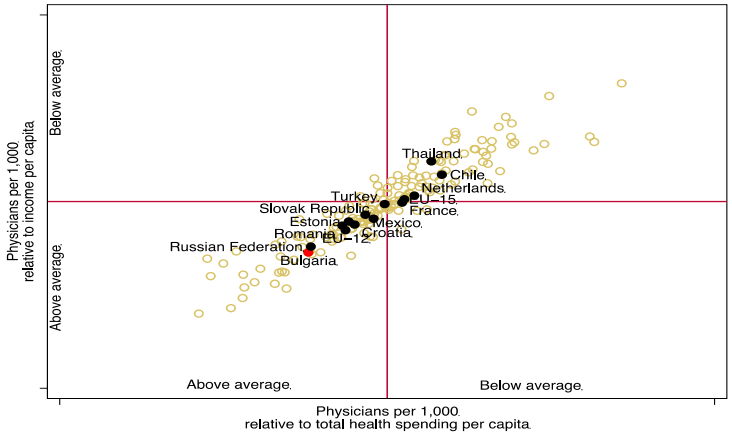
[22] http://www.nsi.bg/en/content/5636/use-health-care-service

Figure 19: Physicians per 1,000, 2012



Source: World Development Indicators & WHO, 2014.

Figure 20: Physician population ratio relative to total health spending and income



Source: World Development Indicators & WHO, 2014. Physicians and GDP per capita data are for latest/earliest available yea

Table 4: General practitioners and nurses, 2011

	GPs per 100,000	Nurses per 100,000
Bulgaria	63.92	474.64
Croatia	51.01	578.84
Hungary		638.41
Romania	68.15	550.84
EU pre 2004	87.4	868.35
EU post 2004	46.13	619.51

Source: WHO Health for All Database, 2014

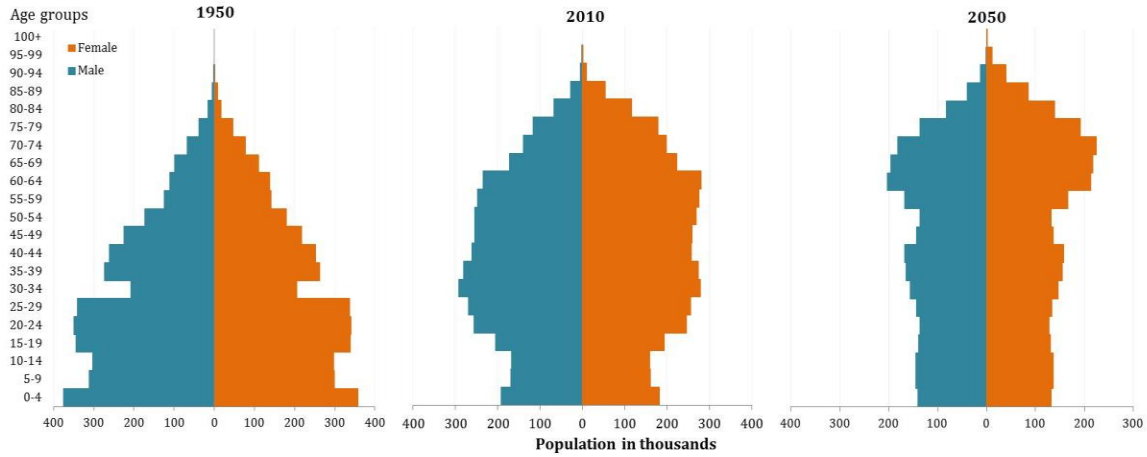
1.3. The broad socio-economic outlook

20. As this report will highlight throughout, tackling health system-based inefficiencies will be key to improving health outcomes in the medium to long run, especially since a number of demographic and economic trends will increase the pressures on public resources and limit prospects for growth, as illustrated in detail by the 2013 World Bank Ageing Report[23].

Aging and migration

21. Current demographic trends will likely exacerbate the prevalence of non-communicable diseases and threaten long-run economic growth. In addition to the relatively constant life expectancy described earlier, low fertility and high emigration have led to a population that is both aging and shrinking rapidly. In 2011, the total fertility rate was well below replacement levels (1.51). By 2050, one in three Bulgarians has been projected to be older than 65, while only one in two Bulgarians will be of working age (**Figure 21**). The UN projects net emigration of 10,000 people per year until 2050, while Eurostat forecasts an even larger cumulative loss of population from out-migration. As a result, by 2050, the old age-dependency ratio is expected to double, and labor supply projections suggest a decline of up to 40 percent (**Figure 22**). Since the proportion of the population that works is a key determinant of a country's income level, its decline is likely to depress growth. Further, fewer and fewer Bulgarians will be available to support people outside of the workforce.

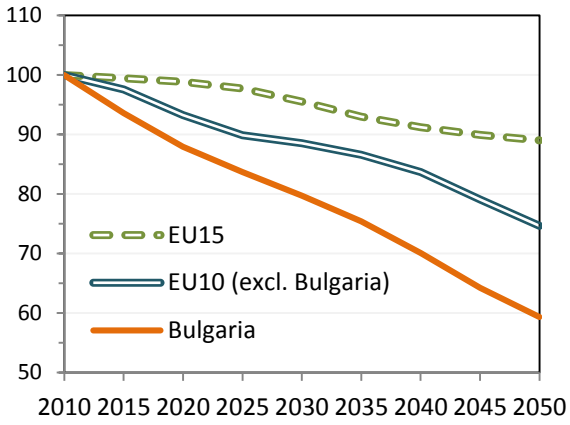
Figure 21: The age structure of the Bulgarian population, 1950-2050



Source: World Bank (2013) calculations based on data from United Nations Population Division (2011).

[23] World Bank. 2013. *Mitigating the economic impact of an aging population : options for Bulgaria*. Washington, DC : World Bank. http://documents.worldbank.org/curated/en/2013/09/18262916/mitigating-economic-impact-aging-population-options-bulgaria

Figure 22: The working age population index, 2010-2050



Source: World Bank (2013), calculations based on data from United Nations Population Division (2011).This figure graphs the working age population index, where the value of the index has been set to 100 in 2010 and the working age population is defined the population aged 15-65 years.

22. This aging of the population and increases in dependency burdens will only be compounded by current migration patterns in which individuals below the age of 40 migrate out, while individuals over 40 have been migrating back to Bulgaria (**Table 5**). Working age individuals who can both contribute to overall economic activity and pay taxes leave the country, while those who are costly and less like to contribute have been returning.

Table 5: Migration by age group, 2007-2013

	2007	2008	2009	2010	2011	2012	2013
Migrants below 40 years	- 1,671	- 1,010	- 11,719	- 15,621	- 3,412	- 3,903	- 3,179
Migrants 40 years and above	+ 274	+ 134	- 4,010	- 8,569	- 1,383	+ 1,391	+ 2.071
Total	- 1,397	- 876	- 15,729	- 24,190	- 4,795	- 2,512	- 1,108

Source: National Statistical Institute, Bulgaria

Vulnerability and informality

23. Aggravating these pressures is the sizeable and increasing fraction of the population that is either poor or highly vulnerable to falling below the poverty line and can therefore ill afford to pay for essential services themselves. Poverty levels have been increasing since 2008. In 2011, more than 21 percent of the population lived below the national poverty line (World Development Indicators, 2014), and more than 16 percent of the population lived on $5 (PPP) or less per day (EU-SILC). Close to 4 percent lived on

$2 per day or less. Nearly half the population, however, or 3.6 million Bulgarians, are living at risk of poverty or social exclusion, the highest percentage in the EU (Eurostat).[24]

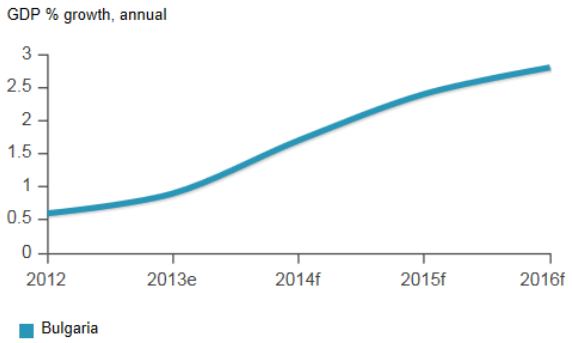
24. The elderly population is especially poor. More than 60 percent of the population aged 65 or older is at risk of poverty or social exclusion (Eurostat). Going forward, an increasing share of the elderly population may also not be able to count on any financial protection coming through the pension system. Currently, the Bulgarian pension system covers only about 55 percent of the working-age population, and it is in financial difficulty. Coverage is expected to decline as a result of high unemployment rates in the medium-term and sporadic contribution patterns due to a large informal work-force. As a result, the share of elderly with pension rights, who benefit from the government subsidies to the pension fund, is projected to decline which will raise the question on how to provide the elderly with decent standards of living (World Bank, 2013).

25. These trends in vulnerability and decreases in the tax base are not aided by the substantial (and relatively static) part of the labor force which works in the informal sector. In 2007, the "shadow economy" was estimated to be more than one-third of GDP (Schneider, Buehn, and Montenegro, 2010). In 2008, approximately 16.5 percent of all workers worked informally (Packard, Koettl, and Montenegro, 2012).

Fiscal and macroeconomic prospects

26. Bulgaria's macroeconomic prospects are bleak in the absence of reform. In the short term, the recovery from the crisis has been weak on the employment front[25]. The number of unemployed more than doubled between 2009 and 2013 to reach 433,000 people, while the number of discouraged workers increased by nearly 60,000 to 207,000. Growth forecasts suggest sluggish growth and a negative current account balance over the next few years (**Figure 23** and **Figure 24**).[26]

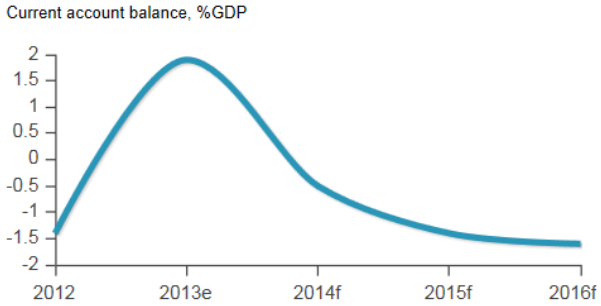
Figure 23: Annual GDP growth, 2012-2016



Source: World Bank Economic Prospects (2014)

[24] The Europe 2020 Strategy defines "risk of poverty or social exclusion" using a three-part indicator comprising risk of (relative) monetary poverty, severe material deprivation, and low work intensity.
[25] http://ec.europa.eu/economy_finance/eu/forecasts/2014_autumn/bg_en.pdf
IMF (2014) Bulgaria: Selected Issues Paper, Country Report No. 14/24
[26] These projections from the World Bank's Economic Prospects differ from those made by the European Commission (2014), but are consistent with the latest projections of the IMF.

Figure 24: Current account balance as a percent of GDP



Source: World Bank Economic Prospects (2014)

27. Moreover, the demographic trends described above will likely take a massive fiscal toll when the labor supply contracts by 40 percent. The macro-economic model developed for the 2013 aging report suggests that even under optimistic assumptions, Bulgaria's demographic transformation will exert steady fiscal pressures and depress economic growth. As labor shrinks by close to 40 percent till 2050, real GDP growth is projected to slow down to 0.7 percent per year by the end of the projection horizon under the baseline scenario. Public expenditures as a share of GDP are expected to increase in the long term as a result of spending for public health care, long-term care and government transfers to the pension system, resulting in an increase in Bulgaria's debt-to-GDP ratio from 18 percent to 51 percent by the end of the projection horizon.

28. The poor health outcomes and shortfalls in the mix of services required to prevent, treat, and manage current disease burdens are indicative of a number of inefficiencies in the health system, some of which stem from the current system of health financing and are explored in greater detail in subsequent chapters. Moreover, the increasing health (and long term care) needs of the population and the limited prospects for increasing public resources for health suggest the need for a deeper understanding of how money currently flows through the system so that existing resources can be better leveraged to deliver appropriate services that fit the future health needs of the population.

Chapter 2. Health financing in Bulgaria: organization and functional analysis

1. This chapter provides a schematic view of the Bulgarian health financing system. The objective here is not to describe the system in detail, as this has been done in a number of studies, most recently in precise and accurate detail by Dimova et al (2012)[27]. The chapter will instead present a summary description of key features of the health financing system, combined with a more detailed analysis of prevailing operational and institutional conditions. This will assist in later highlighting that although many design features of the Bulgarian Health (financing) system, including legislation, financing and risk pooling arrangements, and purchasing methods comport with several elements of global 'good practices', the political economy, institutional arrangements, and division of operational responsibilities, often preclude a holistic policy focus and/or the alignment of authority with responsibility for health financing decision-makers.

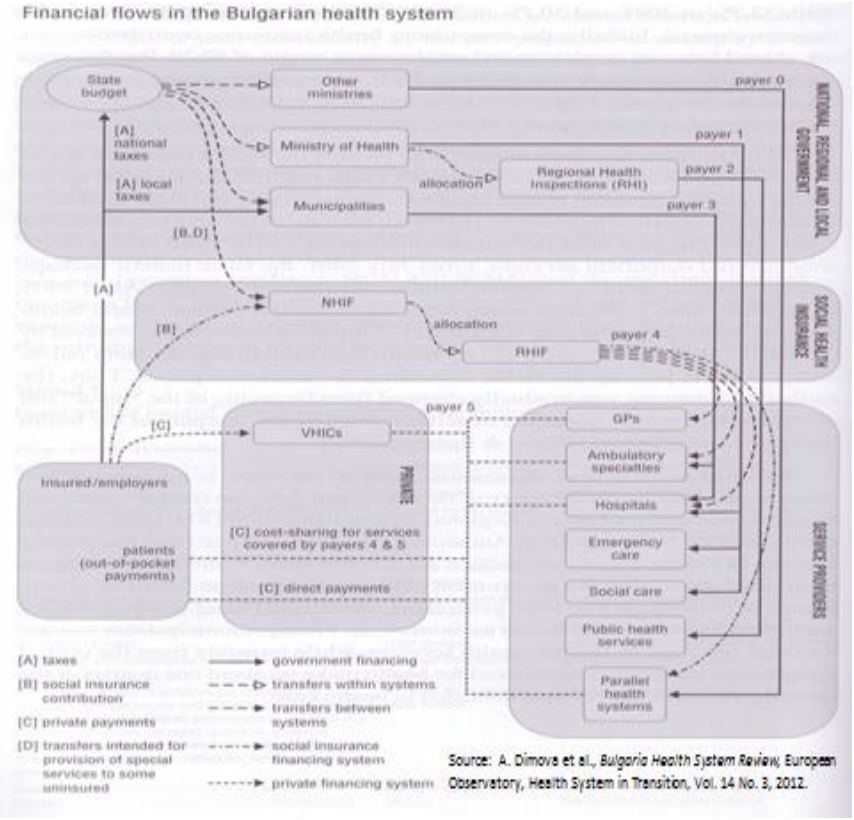
2.1. Health financing system and financing flows

2. The architecture of the health financing system and the organization of financing flows contribute to the performance of a country's health system and ultimately, to that of its economy. Capturing this requires (i) distinguishing the shares of expenditure which are financed via mandatory taxes and contributions – in other words, distinguishing the public share from the private one (revenue raising), (ii) understanding precisely how public and private flows are organized and pooled together (or not) (risk pooling), and (iii) discerning how they are ultimately injected into the health system in the form of payment for goods and services (purchasing).

3. Each of the functional financing dimensions above impacts the performance of the system. The revenue sources determine the level of distortion in the economy (for instance the excess burden of taxation), the fairness of the system, the affordability of universal coverage and the extensiveness of the Basic Benefit Package (BBP), which in turn determine the level of financial protection and influence health outcomes, as well as the long-run financial sustainability of the system. The public and private shares have important implications for overall equity, risk pooling, efficiency and the country's prioritization of health. Payment methods affect the efficiency with which services are provided, which in turn affect access, quality and the level of expenditures, since efficiency gains are in effect, another financing source.

[27] See for example, Dimova A. Rohova et al., 'Bulgaria: Health System Review,' European Observatory, 2012. An earlier comprehensive study was also done by the European Observatory in 2007.

Figure 25 Sources and flows of funds



4. In 2012 around BGN 6.3 billion was spent on health in Bulgaria, 51 percent of which was public and the rest private, mostly out-of-pocket[28]. Figure 25 displays the sources and flows of revenues in Bulgaria's health financing system as well as the channels through which they ultimately become expenditures. Starting from the most macro level, 51 percent of the money going into the system is public, in other words, collected and pooled through some form of mandatory tax or contributions, and distributed based on rules set in various laws. The rest is private money, mostly spent by households at the time individuals seek care ("out-of-pocket"). Of all the public money going into the health system, 48 percent comes from general taxation and the rest from mandated and earmarked social health insurance contributions which flow directly to the NHIF. In total, NHIF pools and distributes around 80 percent of all public health funding and is thus the largest manager of public funds in the system[29]. In addition to contributions, the NHIF receives some transfers from general taxation and some minor other sources (see below). On the private side, over 98 percent of 'revenues' for health arise through the direct purchase of services and copayments and other out of pocket (OOP) costs by consumers, and private voluntary health insurance (PVHI) plays an insignificant role in mediating private expenditure[30]. In sum, OOP – generated

[28] NHA 2012 preliminary data. The figure is for current expenditure – not total. In previous years the difference is around half a percent (public). The data on private expenditure are developed according to the system of health accounts and in implementation of Regulation of the European Parliament and of Council No 1338/2008 on Community Statistics on Public Health and on Health and Safety at Work.

[29] Authors calculation based on NHIF and Boost data

[30] According to 2011 NHA, it represents 1% of private expenditure and corporations another 1%. The rest is out-of-pocket.

by all patients based on individual decisions and NHIF cost-sharing requirements - is the single largest source of revenue and expenditure in the health system in Bulgaria, representing 47 percent of the total (2012 NHA[31]). The second largest is the NHIF which "commands" in a formal and organized way 40 percent of total expenditure on health. All public and private revenues are turned into health expenditures -- some directly by governments at all levels, some through the NHIF and, some via direct OOP payments by consumers to public and private medical care providers, which include GPs, ambulatory specialists, hospitals, emergency care, public health services, and some for parallel governmental health systems (e.g., Ministry of Defense).

5. From policy and financial perspectives, the decisions of many public and private sector stakeholders contribute to determining the overall levels and distribution of health system resources in Bulgaria. Key players include:

- ✓ the National Assembly, which ultimately decides on the levels of total public spending, allocations between sectors, and within health, the MOH and NHIF budget;
- ✓ the Government, including the Council of Ministers (COM), the Ministries of Health and Finance as well as numerous other Ministries and agencies (MOLSW, NSSI, NRA);
- ✓ the National Council on Prices and Reimbursement of Medicinal Products (the Pricing Council),
- ✓ the NHIF and its 28 regional branches, municipalities, private voluntary insurers,
- ✓ and of course individuals who purchase goods and services – the patients and consumers.

6. The other set of stakeholders who influence the level of spending and allocation process are:

- ✓ the providers of health services, which are legally represented by the Bulgarian Medical Association,
- ✓ the companies which sell drugs, consumables and medical equipment, labor unions and patients organizations which are represented at the Board of the NHIF.

7. Bulgaria's national health accounts provide aggregate information on the levels sources and "destination" of public and private funding flows. **Table 6** provides basic information on the level and key components of health spending from 1995-2012, some of which will be analyzed in more detail in the following chapter. Between 1995 and 2012, total health spending increased from 5.2 to 8 percent of GDP. Over the same period, the Government increased the share of its budget spent on health from 8.5 to nearly 12 percent. Yet, the government share of total health spending *decreased* from 74 to 51 percent.

[31] Preliminary 2012 data from the NSI, which indicate a rapid increase in private expenditure. The 2011 data private expenditure was 46% of total health expenditure and OOP 45 percent.

Table 6: Bulgaria's Health Expenditure Level and basic structure 1995-2012

	1995	2000	2005	2012
Total expenditure on health (THE) as % of GDP	**5.2%**	**6.2%**	**7.3%**	**8.0%**
Public share of total expenditure (%)	**74.0**	**60.9**	**60.9**	**51.4**
Breakdown of public expenditure by source				
by NHIF	*0*	*12*	*53*	*79*
by State budget	*n.a*	*n.a*	*40*	*17*
by Municipalities	*n.a*	*n.a*	*7*	*4*
Private share of total expenditure	**26.0**	**39.1**	**39.1**	**48.6**
from OOP	*100*	*100*	*96.9*	*97.7*
Public health expenditure as a % of government expenditure	8.5%	9.1%	11.9%	11.8%

Sources: WHO NHA 2012, BOOST[32], NHIF accounts and authors calculations

8. Changes in health spending over time relative to GDP and overall public expenditure provide an empirical measure of the country's prioritization of health spending relative to overall economic growth (e.g., all activities). Health spending has increased faster than the economy, and despite the creation of the NHIF much of that relative growth has been due to growth in private, as opposed to public, health spending.

9. Table 7 below shows the relationship between total, public, and private health as well as total government spending growth relative to GDP growth for the 1995-2012, 1999-2012, and 2005-2012 time periods as well as the growth of health relative to total public expenditure.

10. Since the NHIF was created, public health spending has increased annually less rapidly than GDP, while private health spending has been increasing significantly more rapidly. Indeed, from 1999, the year the NHIF was implemented, until 2012 total health spending increased 10 percent a year *faster* than GDP. Overall public spending on health increased 3 percent *less* rapidly than GDP, while overall private spending on health increased 28.7 percent a year *faster*. Over the more recent period, 2005-2012, these trends are confirmed but public spending's increase was further reduced to 7 percent *slower* than the GDP while the private spending increase further accelerated (elasticity of 1.40). Still on average, from 1995 to 2012, public expenditure has grown 4.6 percent more rapidly than the GDP. Chapter 3 contains a discussion of public health expenditure in the context of the overall fiscal situation of Bulgaria.

[32] The Bulgaria BOOST database is a micro fiscal public expenditure database developed by the World Bank staff based on MOF data. It follows the national budget consolidation rules and includes information on the approved, executed and amended budgets, broken down by level of government, administrative units, sub-national spending units, economic and functional classification, and financing source, as it is recorded in the Bulgaria's Treasury system.

Table 7: Nominal elasticities of health and Government spending, 1995-2012

	1995-2012	1999-2012*	2005-2012
Total Health Spending relative to GDP	1.112	1.100	1.135
Public Health Spending relative to GDP	1.046	0.970	0.930
Private Health Spending relative to GDP	1.232	1.287	1.402

Source: IMF World Economic Outlook and WHO, 2014

11. These overall spending trends are assessed in more detail later but the figures presented here show that the NHIF is the principal institution shaping the health financing landscape in Bulgaria, which is why it is examined in more detail in the next section.

12. Netting out NHIF expenditures, most of the remaining public spending is managed by the MOH. MOH expenditures cover programs for public health, for diagnostics and treatment, and for medicinal products and medical devices. The share of total MOH spending on these components in 2013 were 16.9%, 75.1%, and 5.3% respectively, leaving 2.8% for administration (MOH, 2013).[33] Although the content may slightly change each year, public health programs generally include health control, prevention and management of communicable and non-communicable diseases, and reducing the demand for narcotic substances. Under the area of diagnostics and treatment, the two most significant programs are Emergency Medical Care and Hospital Care (the latter was removed as a separate program and distributed to various other programs starting 2014).

13. Over time, some of the responsibilities under MOH were transferred to the NHIF while others went back and forth between the two institutions. Examples of the latter are activities for assisted reproduction and mandatory vaccines, which were transferred to NHIF in 2013 but then reverted to MOH. On the other hand, some other major expenses items stay with NHIF, such as intensive care, cancer drugs and hemodialysis.

14. With some responsibilities transferred to NHIF, MOH spending is decreasing appreciably, from nearly BGN million 590.9 in 2010 to BGN million 399.7 in 2014 (MOH reports, respective years). Taking into account inflation, this represents a 36% reduction. Except for administration, reduction compared to 2010 took place in all three major policy areas of the MOH spending, including public health for which the responsibility remains fully with MOH.

[33] [English translation] Ministry of Health (2013) Report on the degree on implementation of the endorsed policies and programs of the Ministry of Health by December 31, 2013. Report by Dr. Tanya Andreeva, Minister of Health.

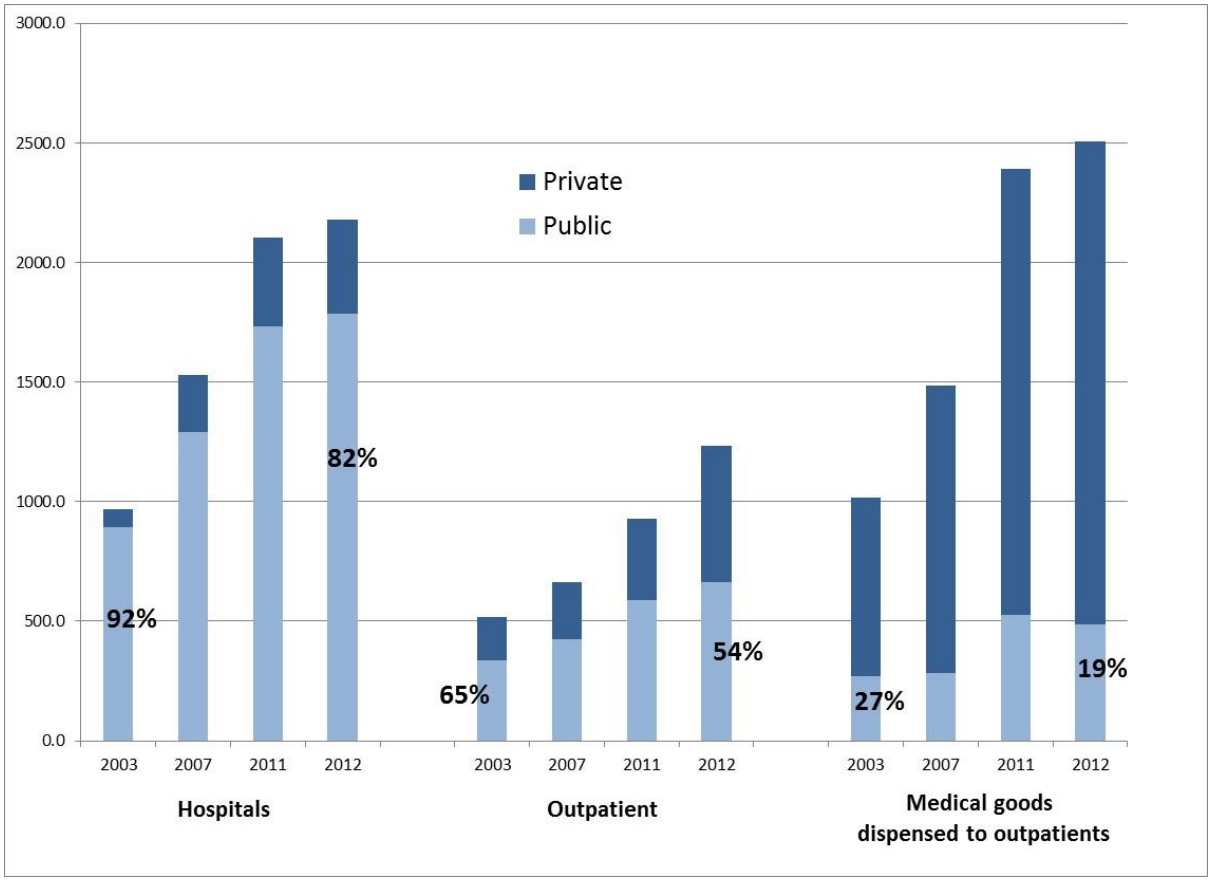
Table 8: Percent change in real MOH expenditure compared to 2010 (%)

Major policy areas	2011	2012	2013	2014 (reported as of Dec 31)	2015 (Law)
Public health, promotion and prevention	15.85	11.32	(37.09)	(32.39)	(16.89)
Diagnostics and treatment	36.11	(8.34)	(24.72)	(20.24)	(14.64)
Medicinal products and medical devices	(35.97)	(91.64)	(86.93)	(87.04)	(83.66)
Administration	51.01	12.21	22.86	125.44	21.88
Total MOH spending	15.88	(24.84)	(40.91)	(36.18)	(30.99)
Total MOH spending (2010 constant BGN, thousand)	684,737	444,096	349,180	377,109	407,776

Note: the percent change is calculated using real expenditures (constant at 2010 value). Real expenditures were calculated using GDP deflator (source: IMF/MOF).

15. Different categories of providers of care receive varying proportions of the public and private funds which circulate in the health system. According to the national health accounts, hospital services are for the most part publicly financed, while outpatient services are more than half publicly funded. Medical goods including pharmaceuticals are mostly privately funded: in 2012, only 19 percent were publicly funded. Over time, the private share has increased for all types of services (Figure 26).

Figure 26 Private and public proportion of expenditure on various types of care 2003-2012



Source: Bulgarian National Health Accounts

Data from 2012 NHA are not verified by Eurostat.

2.2. History and design of the NHIF

2.2.1. History and evolution

16. In evaluating the performance of the NHIF, one must understand its historical context, institutional characteristics, and current operational realities. These operational realities result from endogenous and exogenous institutional, legal, and political factors as well as the organization's own modus operandi. This section of the analysis examines the historical context of the NHIF and summarizes its key organizational features in terms of governance, eligibility, financing, benefits covered, provider payment and contracting, pharmaceuticals, its HMIS, and other key structural factors in the context of its basic health financing functions and goals.

17. From an historical perspective, Bulgaria's health financing and health system reforms exemplify the movement away from the Soviet (Semashko) model. In this model, universal coverage was provided through a public, general revenue funded, national health service (NHS), where all providers were public entities, hospitals received global budgets, physicians and other health workers were salaried public employees, and private practice and insurance were prohibited. Semashko systems were traditionally

underfunded as health was not considered a productive sector, and were hospital-centric. Given the limited resources, they generally performed relatively well in addressing communicable diseases, but many features of their service delivery system are not well adapted to tackling the current and future burden of chronic diseases of an aging population.

18. Over time, Bulgaria has shifted towards a more pluralist health system. It introduced a social health insurance fund. The reforms separated purchasing from provision with the intention that money would follow patients rather than finance existing facilities irrespective of their performance and usage. Provider payment reforms were implemented, private provision and private health insurance were authorized, ambulatory care privatized, and hospitals became autonomous. The MOH retained responsibility for public health, emergency care, TB, HIV/AIDs, mental health and some other services, and its role evolved towards that of a steward in the system.

19. The NHIF became the core entity responsible for health financing. Typically, a social health insurance fund is responsible for the bulk of (public) revenue raising and expenditures; it pools health risks through a single national risk pool, and purchases services on behalf of its enrollees. Social solidarity is achieved in principle by having a single national risk pool and compulsory enrollment for the entire population. The NHIF was created by a 1998 law and since then, the NHIF legislative and regulatory structure has gone through numerous changes (some 100 changes to date)34, many reflecting Bulgaria's volatile political environment. The NHIFs underlying Health Insurance Law and the country's basic Health Law specify its structure and operational requirements in terms of governance, eligibility, benefits covered, financing, contracting/purchasing, and a host of other operational and structural features. As discussed above these have been highlighted in detail in numerous other studies, and will only be summarized here.

20. From a big picture perspective, the NHIF appears to be fairly comparable to many 'social (or mandatory) health insurance funds' of the EU. The entire population is in principle covered through a compulsory, universal, and autonomous public health insurance fund. Workers (and their employers) pay a social health insurance contribution based on their income. The poor, unemployed, children, pensioners, the disabled, and other socially dependent or priority groups are financed by the government. The single national public fund pools the health risks for the entire population, and purchases services from both public and private providers for program enrollees.35

21. The following summarizes the basic structural features of the NHIF including governance, eligibility requirements, benefits covered, financing arrangements, purchasing/contracting, pharmaceuticals, HMIS, and other key elements. This section of the analysis lays the basis for assessing the performance of the NHIF by analyzing its operational realities. In particular, it describes the system of rules and regulations which constitute the NHIFs operational environment.

2.2.2. Governance

22. The NHIF is a public non-profit institution managed by a Governor, under the supervision of a Board. Since 2010, the Governor is elected by the Parliament. The supervisory Board has nine members:

[34] According to Todorova and Salchev the situation regarding all health and health-related legislation is even more tumultuous. Between 1999 – 2014 numerous laws have been adopted affecting health -- 13 acting directly in the health care system and 9 indirectly related to the healthcare, and 293 changes have been made affecting the first set of laws and 373 changes in the second set of laws. Rumanya Todorova and Petco Salchev, 'Challenges and Alternatives to the Health Insurance Model in Bulgaria', PPT, Sophia Bulgaria, 2014.

[35] See Gottret and Schieber, 2006, pp. 82-96 for a detailed discussion.

a representative of patients' organizations, two representatives of employees' unions, two representatives of employers' unions, and four representatives of the State appointed by decision from the Council of Ministers.

23. While the Ministry of Health is responsible for overall health policy, the NHIF is an autonomous agency subordinate to the National Assembly which operates in the context of the consolidated public expenditure framework. Since its foundation, the NHIF has had 12 Governors whose mandate on average has been about a year. The NHIF primarily focuses on administering the system according to the rules and managing the tension between patients and providers expectations on the one hand, and the budget constraints imposed by Bulgaria's fiscal framework on the other. Its internal organization does not explicitly include strategic or analytical departments which could (for instance) assess its performance, simulate the possible impact of changes in policy, systematically and statistically monitor the behavior of providers or patients, evaluate its financial solvency and fiscal sustainability, etc. Although most of the rules under which it operates are set in the Law, the NHIF retains important responsibilities for negotiating with the NFC, enrollment, paying claims, and otherwise interfacing with providers. To date, either due to capacity constraints or for political reasons, it has not put much emphasis on leading a technical dialogue within its mandate to try to manage some of the constraints if faces.

2.2.3. Eligibility

24. The Health Insurance Law mandates compulsory coverage for all Bulgarians. It is an employer/employee mandate for formal sector employers/workers and an individual mandate for the self-employed including informal sector workers. Unemployed individuals not entitled to unemployment compensation or social supports are also required to enroll. The rest of the population, including children and pensioners, is covered by the state. Table 9 displays the different eligibility categories and their contribution requirements.

Table 9 NHIF source and contribution levels by eligibility category

Category of insured individual	Calculation Basis	SHI paid by	Rate	Elements of calibration** (2013)
Employed individuals	Salary with minimum and maximum income subject to contribution	60% by employer 40% by individual*	8%	Minimum contribution BGN 34 with employee share: 13 (€7) Average contribution BGN 52 with employee share: 21 (€11) Maximum contribution BGN 176 with employee share: 70 (€36)
Self-employed individuals, registered farmers and tobacco growers, unemployed individuals not entitled to compensation or social support	Declared income (with min and max)	Individual	8%	Minimum contribution BGN 34 (€17)
Children up to 18 years, full time students up to 26 years	Half of the minimal insurance income	State budget	8%	Flat contribution BGN 17 (€9)
Civil servants	Salary with minimum and maximum	State budget (100%)	8%	Salary with minimum and maximum income subject to contribution
Pensioners	Size of pension	State budget	8%	Average contribution BGN 24 (€12)
Unemployed individuals entitled to compensation for unemployment, Individuals with disabilities eligible for social support, recipients of social assistance, refugees, detainees, Veterans, Spouses of socials participating in international missions and operations, Adults who take care of disabled people in constant need of care (and a few other categories)	Half of the minimal insurance income	State budget	8%	Flat contribution BGN 17 (€9)

- *In some cases, the employer contributes on behalf of the employee (eg during maternity leave, in case of temporary disability etc.)*

*** Based on NSSI statistics. The 2013 minimum insurance is BGN 420 (€214). Amounts are computed on a monthly basis.*

25. Effective enrollment is subject to the enrollee having paid the required contributions or being recognized as exempt. The National Revenue Agency which, among other functions, collects contributions from the employees and employers, data from the Social Security Institute on pensioners and other categories, verifies compliance, and provides to the NHIF a roster of insured persons, in which they are identified by their national identity number. When a person needs care, providers (and the NHIF)

essentially check their current insurance status against this list. The NHIF incidentally is not aware of the grounds on which a person is covered (which limit its capacity to analyze the various populations risk profile).

26. Uninsured people can activate coverage at any point, and may be motivated to do so when hospitalized or faced with catastrophic expenditure, resulting in potential adverse selection for the NHIF. If a person is not covered, they need to pay 3 years of contributions (and interest) into the system to become effectively insured, or any amounts outstanding over the preceding 36 months if they did not contribute regularly. Based on the data above, a retroactive contribution for 36 months based on the minimum contribution would amount to around BGN 1,200 (at most). In 2013, the actual average payment for a hospital stay by the NHIF was around BGN 660. In the NHIF price list for hospital stays, however, around a quarter of the prices are above 1,200. Clearly, if the patients' condition requires a costly hospital stay, both they and the provider have a strong incentive to retroactively "purchase" the NHIF coverage and receive the NHIF payment.36 No data are readily available to assess whether this occurs frequently and /or about the characteristics of the people who might use this form of adversely selected catastrophic coverage. However, given the coverage rules laid out above, one can assume they would be found among otherwise healthy working age adults who are not working or working in the informal sector.

2.2.4. Benefits covered and cost-sharing

27. The Health Insurance Law stipulates that the insured are entitled to receive "medical care within the scope of the basic package of health-care activities guaranteed by the budget of the National Health Insurance Fund". The basic benefits package (BBP) is however not specified by the NHIF, but in ordinances issued by the Ministry of Health. The benefits package is further operationalized in the context of the National Framework Contract (NFC), which is negotiated between the NHIF and the organizations representing medical care providers (see below).

28. Broadly speaking, the benefits package includes primary and specialized ambulatory medical and dental care, drugs, laboratory services, inpatient hospital care, and some highly specialized medical services (e.g., renal dialysis, oncology treatment). The BBP does not include long-term nursing care, long-term care for elderly people, spa treatment, alternative therapy, elective cosmetic surgery, elective termination of pregnancy, and contraception. Emergency care, mental health care, renal dialysis, in vitro fertilization and transplantations are covered by the Ministry of Health[37]. Planned treatment abroad can be paid by the NHIF if the patient has a prior authorization given by the fund[38]. Over the years, the MOH has transferred the responsibility for funding additional goods and services to the NHIF. For instance, the NHIF only started covering hospital care in 2006. Most recently, in 2012, the NHIF became responsible for covering the purchase by hospitals of a list of specialty medicines including drugs for oncology, post-transplant immunosuppression, and various orphan diseases. (See Section 3 below).

29. In practical term, the benefits package is quite opaque and the coverage of services ultimately limited by the budget parameters of the NHIF budget approved by Parliament for the year. The BBP is described in three main ordinances. The main one (№ 40, 350 pages long) presents the services covered

[36] Hospitals may even have an incentive to pay on behalf of the patients.

[37] Article 82 from Health act describes medical services covered by the Ministry of Health beyond the scope of the mandatory health insurance. Art.45 from Health Insurance act describes in general terms the scope of services covered by the NHIF.

[38] Dimova et al

for all patients. In many respects it is very detailed, for instance it gives a positive list of all the specialized outpatient services covered by specialty, all the tests covered etc. In contrast, for inpatient hospital care, the ordinance only provides a list of Clinical Care Pathways (CCPs). The ordinance also lays out how GPs are supposed to ensure access to urgent care to their patients outside of working hours. Another ordinance (№ 39) sets out the specific activities to be performed in as part of a "prevention examination" and for "dispensary patients" who suffer from one or more of a list of chronic diseases specified in the ordinance[39],[40]. Overall, the contours of the BBP are difficult to understand for patients who need to rely on providers, starting by their general practitioners, to assess which services are covered or not.

30. The inclusion of new services in the BBP is driven by experts who work in, or advise the Ministry of Health, mostly medical practitioners. No systematic method is employed or objective criteria used to guide these decisions (e.g., efficiency and effectiveness). Specifically, with the possible exception of drugs (See Section 3), the economic aspects of decisions to include new services are not assessed.

31. The health insurance law requires cost-sharing for certain services and sets the main exemptions criteria.[41] The level of copayment is established by a Council of Minister ordinance. The National Framework Contract also sets copayments for tests.

32. Table 10 displays the cost-sharing requirements by type of service. Exemption criteria are linked to age (e.g. all children) and health status: patients suffering from diseases listed in the National Framework Contract are exempted from payment for services irrespective of the specific reason they access the system. Some specific groups (inmates) are also exempted, as well as medical personnel. Since 2014, old-age pensioners' copayments for GP visits have been reduced by half. No exemption criteria are specifically linked to income.

33. Copayments for health services are collected and retained by the providers. Copayments thus represent a formal additional payment for services covered by the NHIF. Providers are supposed to issue receipts for co-payments received. Exempt patients are expected to show the provider documentation that justifies why they should not pay. With the exception of pensioner GP visits the provider is not compensated when patients are exempt.

34. Extra-billing is allowed in hospitals if the patients choose a VIP room and/or to be treated by a specific physician or team (in that case it is capped at about BGN 700 (€357) for choosing a doctor BGN 950 (€486) to choose a team. If patients require services which are not in the BBP they must pay out-of-pocket.

[39] A dispensary patient is someone who suffers from one of the listed chronic diseases.
[40] The last ordinance, № 38 covers medicines in the reimbursable drug list discussed elsewhere in this report.
[41] Ibid p.59

Table 10: Cost-sharing requirements by type of service

Type of Service	User charge (2014)	Exemptions
GP or specialist visit	BGN 2.9 (€1.5)	Children, war veterans, war invalids or war victims, inmates. Patients suffering from one of a list of diseases listed in the National Framework Contract (irrespective of reason for consultation) Pensioners pay BGN 1 of the user charge for GP visits (and the state pays 1.9 as a state transfer).
Hospital	BGN 5.4 (€2.8) with a maximum of BGN 54 per year (10 days). Extra billing is allowed if patients choose "VIP rooms" or their physician (with a cap for the latter)	
Laboratory tests	Defined in the National Framework Contract: BGN 2 (€1)	No
Dental care	Depending on service (many services are not covered)	Reduced for children
Pharmaceuticals	The NHIF covers a fixed percentage (10, 25, 50 or 100) of the reference price established by the Pricing Council. The level of coverage is determined by the Pricing Council as part of it decision making on the composition of the positive drug list A dispensing fee of 2 BGN payable only for prescriptions including up to 3 fully reimbursed items.	None

35. As shown in the above table, for prescribed outpatient pharmaceuticals, the NHIF reimburses a variable percentage of the reference price for a given class of drug, with the proportion (10, 25, 50 or 100) determined by the Pricing Council. The reference price is based on the product with the lowest cost per DDD, and this is pro-rated across all pack sizes. The patient's out of pocket costs consist of the reference price minus the NHIF contribution, plus any difference between the reference price and the retail price of the product. Table 11 illustrates the implication of this reimbursement method for ranitidine, a drug used in the treatment of oesophageal reflux and peptic ulcer disease, for which the level of reimbursement by the NHIF is 25%. The drug is available in 3 different forms on the market. For a treatment course corresponding to 30 days of 300mg/day (300mg being the defined daily dose or DDD[42]), the patient will pay either BGN 5.96, 15.17 or 13.61 out of pocket, and the NHIF contribution will be constant (BGN 1.99). There are no copayment exemptions for drugs. (See section 2.3).

[42] The defined daily dose is a statistical measure, not a therapeutic one. In reality, in order to obtain the same therapeutic effect, the prescription for each drug (the therapeutic dose prescribed) may differ across the 3 products and correspond to different DDD amounts.

Table 11 Example of reimbursement for ranitidine (Annex 1 as of 12/12/2014)

	Ranitidin Tchaikapharma (lowest price per DDD = reference price)	Ranitidin Accord (form 1)	Ranitidin Accord (form 2)
Unit dose	150mg	150mg	300mg
Quantity in pack	20	30	30
Number of DDDs in the package	10	15	30
Retail price for package	2.65	8.58	15.6
Reference price adjusted for amount of active ingredient in the package	2.65	3.98	7.95
Amount paid by patient for the package	1.99	7.59	13.61
Amount paid by patient for 30 DDD	5.96	15.17	13.61
Amount paid by NHIF for 30 DDD	1.99	1.99	1.99

2.2.5. NHIF budget and financing

36. Every year, in line with the Public Finances Act, the NHIF prepares a draft law presenting its own budget which is ultimately submitted to the Council of Minister for approval along with the consolidated fiscal program and the draft budget law of the Pension Fund. The Council of Ministers may make adjustments in particular to ensure that the consolidated fiscal program adheres to the predetermined budget balance which is set in the Public Finances Act. The package is then sent to Parliaments where it can also be adjusted, while remaining within the macro-fiscal parameters of the Public Finances Act. If in the course of the year, it appears that there could be an overrun, shortfalls can be accommodated through measures taken by the NHIF, through implicit rationing, which impacts providers (though deficits) and/or consumers (through rationing of services) or additional budget allocations. The latter must ensure continued compliance with the Public Finances Act and be approved by Parliament (as occurred twice in 2014).

37. The main criterion driving the proposed allocation to the NHIF is the requirement to meet the MOF NHIF budget target which embodies the Government's macro fiscal rules on the deficit, consonant with both EU fiscal targets and the Government's fiscal framework. Following a procedure outlined in the Law on Public Finance, these targets are set by the MOF and are strictly applied. If the NHIF spends more than the amount anticipated (and is unable to introduce cost-saving measures), the NHIF budget law needs to be revised, with approval from Parliament (and this can lead to cuts in expenditures in other ministries). The NHIF could also run a deficit, but this is not customary. It can also postpone or suspend payments to medical care providers.

38. The NHIFs funding sources are specified in various statutes and decrees that are exogenous to the NHIF. As shown in Table 9 these include social contributions from employed and self-employed workers based on their incomes, and government contributions for children, the disabled, the unemployed, and other socially dependent groups. The Government also pays the contributions for its employees. There are also some small direct contributions from the MOH, fines, and investments.

39. In practice, contributions are collected by the National Revenue Agency and transferred to the NHIF. The MoF transfers to the NHIF the amount set in the budget law which corresponds to its anticipated obligations according to the law (see Table 9). Detailed computations for that amount are not readily available. If in the course of the year, the NHIF received more contributions than anticipated, it is allowed to spend them. If there is a shortfall, one of the above options needs to apply.

2.2.6. Purchasing/Contracting medical services

40. This section describes the contracting and payment methods used by the NHIF which is the main purchaser of services in the Bulgarian health system. For services to private patients, whether they purchase services directly or are privately insured, providers are generally paid on a fee for service basis. Private insurers generally negotiate with providers their payment levels. However given the very limited penetration of private voluntary health insurance (PVHI) due to the extensiveness of the NHIF BBP as well as the country's low income level, private insurers lack the market clout to negotiate efficient payment rates and tend to be price takers. [43]

2.2.6.1. National Framework Contract and macro-level negotiations

41. The National Framework Contract (NFC) is negotiated every year between the Bulgarian Medical Association and the NHIF**.** It includes services provided by all categories of medical professionals and in facilities. It is a legally binding document that each provider/entity must sign to indicate its acceptance of the contract terms. It is also ultimately the instrument through which the budget targets set at the macro-level are implemented. Contract negotiations typically start in August/September and are finalized at the end of the calendar year. If the negotiations fail, provisions are made for the Government to step in and ensure the system continues to operate (which in recent years has tended to happen more frequently). The following describes the various steps involved in the overall negotiation.

42. The NFC itself sets, among other, for all the providers of services and pharmacies:

- ✓ the conditions which providers must meet to enter into a contract with the NHIF;
- ✓ the contracting procedures, the documents they must provide and the documentation flows;
- ✓ the conditions under which medical services are covered and the rules for coverage. In particular, it details the "Clinical Care Pathways" based on which hospitals are paid (see below). Each CCP algorithm contains: (i) inputs requirements (HR, equipment), (ii) the list of services which services must be provided (procedures, tests) and (iii) the manner in which they must be provided (length of stay). Unless these conditions are met, the hospital is not entitled to deliver the CCP (i) or to receive payments for it (ii and iii). The NFC also establishes norms regarding the number of services which will be reimbursed based on various circumstances (e.g., for chronic care patients).
- ✓ the obligations of the parties as to information provision and the exchange of information.

43. The next step is the "price and volume" determination, which is currently set outside the NFC through a separate negotiation between the NHIF and BMA. The binding constraint for this exercise is that the budget target of the NHIF must be met. If no agreement is reached at this stage, the price and volumes are set in an ordinance which is promulgated by the Council of Ministers. At the price-volume agreement stage, the global envelope is divided between sub-categories of providers. Effectively, prices

[43] See Section VII National Framework Agreement from the HIL and Dimova et al., Ibid for a detailed discussion of PVHI coverage and payment procedures.

and volumes are mainly renegotiated at the margin based on previous years' realizations. In this process, which is typically more antagonistic than cooperative, the providers association's overall incentive is to try to negotiate unit prices rather than volumes increases. Indeed, if the planned volumes are exceeded before the end of the year, the threat to suspend or postpone the service delivery is more likely to lead to re-negotiations and ultimately to more money being put in the system.

44. Once the process is completed, the NHIF divides the available budget between regions and the Regional Health Funds are responsible for verifying the eligibility of providers, signing contracts with them, establishing individual hospital budgets and GP and specialist referral and lab test ceilings, paying claims, and conducting medical audits. The methodologies for dividing budgets across categories of providers, among regions, and to each provider individually are decided by the NHIF.

45. The NHIF employs a wide range of payment methods differing by provider type. In general hospitals are reimbursed from the NHIF on the basis of a bundled fee for service payment for some 300 clinical care pathways (CCPs) and are also subject to annual budget ceilings. GPs are paid on the basis of capitation and fee for service and ambulatory specialists, laboratories and dentists are paid on a fee for service basis. The following highlights these approaches.

2.2.6.2. General Practitioners

46. General Practitioners (GPs) carry out basic examinations, provide simple tests and treatments, conduct consultations, prescribe drugs on the positive drugs list and provide some preventive services for patients.

47. GPs receive two types of payments from the NHIF: an age-adjusted capitation for all the patients on their list and additional fees for specific (mainly preventive) activities, such as immunization and check-ups. They also receive additional fees for services provided to "dispensary" (chronic) patients they manage44 (e.g., hypertension, diabetes, asthma, etc.). Moreover, those working in sparsely populated and remote areas receive an additional per-capita remuneration. In 2013, the capitation represented 49% of payments to GPs, prevention activities 31% and fees for chronic patients 19% (some minor payments make up the total).

48. These payments represent the main sources of revenues of GPs practices, which are private individual practices, and most typically employ a nurse, who is salaried by the practice. There are some group practices but patients (and referral quotas and budgets see below) remain attached to individual GPs.

49. GPs also manage a virtual referral budget that sets both limits and requirements for referring patient to specialists (a numerical quota) as well as for diagnostic and therapeutic testing (a monetary budget). The methodology allocating referral budgets between GPs and specialists as well as among them is defined by the NHIF based on the profile of patients. A large proportion of these are actually earmarked for "dispensary patients", who are entitled or supposed to receive specific services and tests on a regular basis45. These referrals are required even when GPs are able to treat the patients or their risk factors are under control (i.e., such as patients who have hypertension or COPD). If GPs overrun their referral / test

[44] The NFC lists to which extent each type of chronic patients can be "managed" by GPs or specialists and the services they are entitled to.

[45] This proportion would vary depending on the mix of patients but GPs generally claim that around half of the budget they managed is absorbed by dispensary patients for mandated activities.

budgets they are actually fined but they are not rewarded for "saving" funds in the referral or testing budget. GPs have no limits in the number of acute patients they can refer for hospital care.

2.2.6.3. Specialists

50. Specialists have contracts with the NHIF for consultations and tests for patients referred by GPs or other physicians, and they are paid according to a fee-for-service model for these services. Patients can access them directly (but without GP referral must pay for the service out of pocket). Specialists can refer patients to other specialists, refer patients for tests/procedures, and admit patients to hospitals.

51. Specialists are allowed to see a patient a maximum of twice within a 30-day timeframe for each GP referral (which is good for a 30 day period), and are not paid for any additional visits. If the need arises, the specialist can send the patient back to his or her GP for another referral, refer the patient to a different specialist, see the patient without being compensated by the NHIF (and most likely seek payment from the patient), or admit the patient for hospital care. There are no limits on the number of referrals specialists can make to the hospital setting.

52. As for GPs, specialists also manage annual referral and testing budgets set by the NHIF. Specialists must follow the NFC's rules and payment requirements when referring patients for diagnostic services.

53. As for GPs, specialists also work in single or group practices. They may have laboratory and diagnostic imaging services on-site although this is more likely in group practices. However, specialists interviewed claimed that in many instances the unit prices of some diagnostic tests are too low for them to purchase and maintain the necessary equipment and they are only left with the option to refer patients to hospitals where the tests are carried out on an in-patient basis.

54. Many specialists practice both in ambulatory settings and in hospitals46. Specialists then have an employment contract with a hospital that specifies their salary and "additional incentive" payments they may receive (i.e., for providing high-quality care, bringing business in, etc.). This second contract may create incentives for specialists to admit patients — even when the patient could be treated in the outpatient setting. While specialists do not admit patients to specific hospitals, patients are, in reality, very likely to present to the hospital with which their specialist is associated.

2.2.6.4. Hospitals

55. For inpatient hospital services, Bulgaria uses a form of case-based payment that defines cases by a Clinical Care Pathways (CCP) system. The CCP system is a combination of a classification system, clinical guidelines/protocols, and a series of contracting rules. Bulgaria differs from most other countries that use classification systems driven by diagnosis and procedure codes, in that it embeds both clinical guidelines and payment/contracting rules into what it considers the grouping/classification system. As mentioned above the CCP algorithm, set out in the National Framework Contract, lays out the inputs/capacity (i.e., number of doctors and/or nurses, type of equipment, etc.) a hospital must meet in order to obtain a contract for a given CCP and the actual services which must be delivered in order for a given hospital stay to be eligible for payment under a given CCP. When CCPs were introduced in 2001, there were 30 of them, today, there are 308.

56. All hospitals which meet standards established in the NFC for a given CCP are allowed to enter into a contract with the NHIF which in turn has no legal ground to deny them a contract. In other words, the NHIF is essentially prohibited from selective contracting. Since 2010, the Ministry of Health has

[46] Numbers are not readily available. Estimates vary between 20 and 30 percent.

established standards which distinguish three types of competency levels for hospitals, based on the inputs/capacity (i.e., number of doctors and/or nurses, type of equipment, etc.). The hospital's Level assignment indirectly drives the number and type of CCPs it is allowed to perform. Hospitals sign a contract with the NHIF that specifies which CCPs they are allowed to perform.

57. Hospitals have a "price and volume contract" with the NHIF and are paid according to the CCPs assigned to their inpatient discharges. The contracts are subject to negotiation each year. A flat payment is made to hospitals for each CCP reported. Hospitals that exceed (or are at risk of exceeding) their contracted amount of CCPs approach the NHIF for additional funding and are typically successful in receiving additional funds. As such, like in all fee for service systems hospitals have a strong incentive to maximize the number of admitted patients and to assign them to the highest paying CCPs. For all intents and purposes, despite the fact that all hospitals have budget ceilings, these ceilings are not enforced, which means physicians and hospitals have no incentives to keep patients out of the hospital even if they could treated in the outpatient setting. Cases of patients being admitted to hospitals in order to avoid waiting times for certain tests/procedures or to avoid an out of pocket payment are evidently quite common.

58. The CCP system does not rely on grouping logic; instead, hospital physicians select and report the CCP name and number on the bill that best represents the case treated. Then they select an appropriate diagnosis code and procedure code if applicable for the case that meets the CCP contracting criteria. In addition to reporting specific codes to meet CCP requirements, hospitals also work to ensure that they meet all other rules and requirements that have been established for the CCP in order to obtain reimbursement from the NHIF. These requirements were developed by the NHIF in conjunction with the Bulgarian Medical Association (BMA), and include:

- ✓ The minimum length of stay for the CCP;
- ✓ Diagnosis and procedure codes;
- ✓ Contracting requirements related to the equipment, and number of physicians and other staff that must be available;
- ✓ Instructions for completing procedures; and
- ✓ Post-treatment guidelines.

59. The price of the CCPs is the result of negotiations between the NHIF and BMA. According to the health insurance law, the prices of CCPs – and in fact all services paid by the NHIF – are supposed to be computed according to a methodology which is to be developed by the NHIF (and on which the Ministry of Health and Finance are to give an opinion) and approved by the Council of Ministers. In reality, prices are the result of negotiations between the NHIF and BMA. Increases and revisions are negotiated at their initiative, motivated either by evidence of distortion and over/under pricing or to reflect changes in the clinical pathway algorithm (or instance the introduction of a new technology or technique). Overall, there is a consensus that the pricing matrix of CCPs contains distortions both within and across specialties.

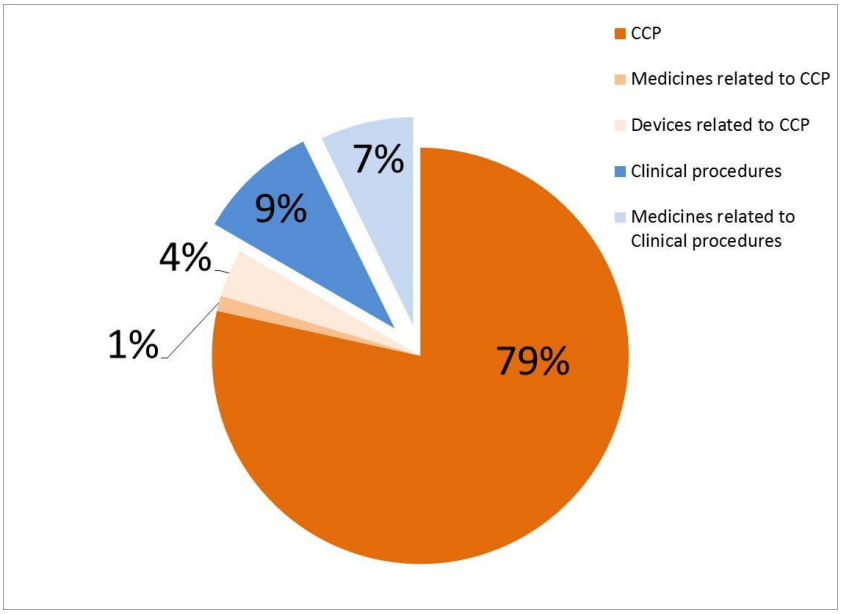
60. In addition to payments for CCPs, hospitals receive from the NHIF:

- ✓ Payment for specific drugs not included in the CCP prices, including cancer drugs. The hospitals procure the drugs selected by the National Council on Prices and Reimbursement of Medicinal Products. The list sets the maximum hospitals are allowed to pay for any of these drugs.
- ✓ Payment for some medical devices.

✓ Payments for a series of "clinical procedures" and related drugs, which include hemodialysis, some chemotherapy, and intensive care (paid on a per-diem basis).

61. As Figure 27 blow shows, CCP and related payments represent around 85 percent of payment to hospitals by the NHIF.

Figure 27 Breakdown of payments to hospitals by NHIF 2013



Source: data provided by NHIF, author's computations

62. Overall, three quarters of the public funding to hospitals is channeled through NHIF.[47] Around 25 percent of hospital funding comes from various other sources. There is no clear picture of how these flows are organized but to highlight some of the main channels:

✓ Psychiatric hospitals and a handful of specialized facilities (social care children home) are paid on a per diem basis by the Ministry of Health.

✓ "Mainstream" hospitals can also receive payments for specific services (Emergencies, transplantations) and functions such as research and teaching, as well as investments

✓ Some Ministries and the council of Ministers run their own hospitals. While these can contract with the NHIF they also receive block grants and investments from their own Ministries. Municipalities also fund the hospital they own.

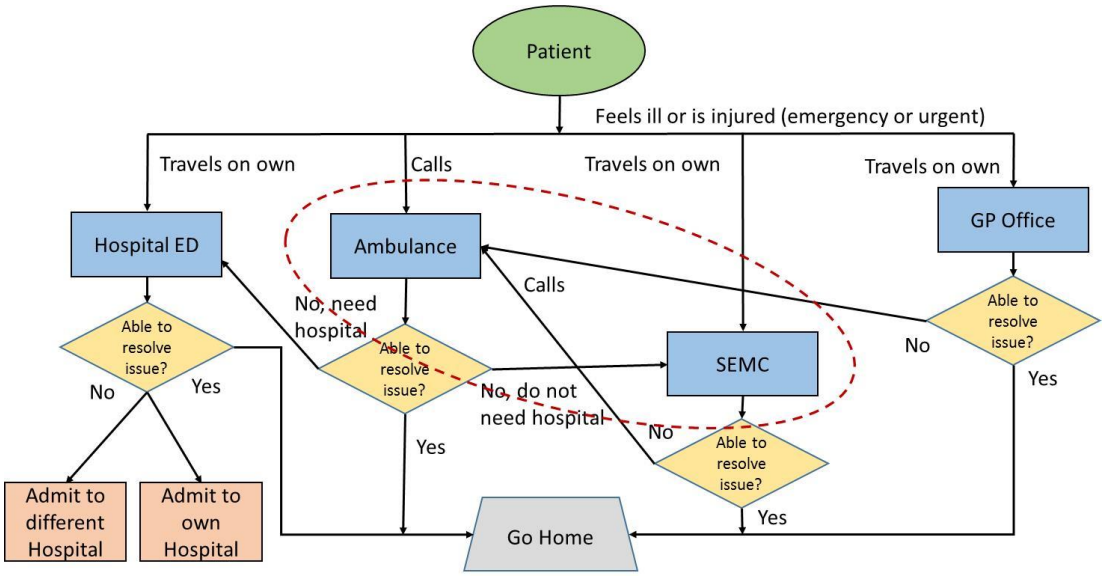
63. There are no readily available data on hospital finances. Hospitals are autonomous organizations registered as trade companies owned for the most part by municipalities. By law their accounts are public and should be available at the MoH and NSI but access could not be secured and no consolidated data are available. The Media and officials periodically report numbers on the "debts of hospital" but data available are insufficient to assess the financial viability of public hospitals.

[47] National health accounts 2011

2.3. Organization and financing of emergency medical services (EMS)

64. The package of emergency medical services (EMS) in Bulgaria is under the auspices of the Ministry of Health (MOH). The main providers of EMS are: (1) 28 regional centers for emergency medical care (CEMC) and their 198 subsidiaries (SEMC) operated by the MOH; and (2) emergency departments (ED) in 37 multi-profile hospitals. In addition, GPs are supposed to provide 24-hour "urgent" care,[48] and hospitals that do not have an ED are also supposed to provide reception of emergency patients 24 hours a day, according to Article 19, paragraph 3 of the Medical Establishment Act. The diagram below pictures emergency care system in its totality and as an integral part of the health system.

Figure 28: Paths to using Emergency Medical Services



(Source: authors, based on MOH, 2015)[49]

65. Currently, no break-down data are available on the share of the patient volume among different segments of the path to EMS as described in the diagram. Although no statistics are available, it is generally agreed that patients do travel on their own to hospital emergency departments, that GPs rarely provide 24-hour urgent care as they are supposed to under their contract with NHIF, and that emergency cases are more frequent among patients without health insurance. In 2013, the CEMC/SEMC system (as depicted in the dotted oval shape in the diagram) processed nearly 762,000 calls and performed more than 572 thousands outpatient exams (MOH, 2013).[50] In 2014, about 700,000 emergency patient

[48] According to the NHIF payment system, about 2.5%-4.5% of the total GP capitation payment was for "24 hour monitoring" of patients.

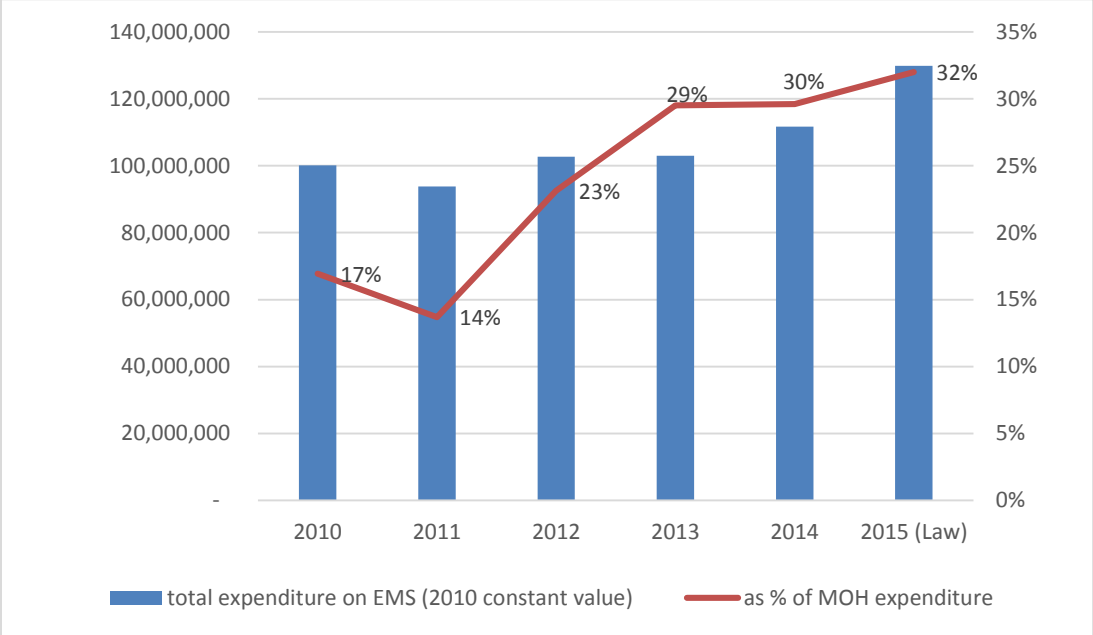
[49] [English translation] Ministry of Health (2014) Concept for the Development of the Emergency Medical Care System in the Republic of Bulgaria 2014-2020.

[50] [English translation] Ministry of Health (2013) Report on the degree on implementation of the endorsed policies and programs of the Ministry of Health by December 31, 2013. Report by Dr. Tanya Andreeva, Minister of Health.

encounters took place in hospitals, not including patients who were subsequently admitted to the same hospital (MOH, 2015)[51].

66. The MOH has a budget program for emergency medical care, the funding of which is used primarily for the CEMC/SEMC system. Since 2012, the Emergency Medical Care program contains funding for both CEMC/SEMC (so-call "departmental cost") and hospitals providing emergency care (so-called "administrated cost"). Before 2012, the program only contained funding for CEMC/SEMC, and the funding for emergency care provided in the hospitals was included in the Hospital Care program. In 2013, the total expenditure of the Emergency Medical Care program was 110.4 million BGN, of which 94.1 million BNG (86%) was spent on the CEMC/SEMC system (the "Departmental cost").

Figure 29: Total expenditure on EMS in in absolute value and as a share of MOH expenditure, 2010-2015



Note: Expenditures for all years were converted to 2010 value using GDP deflators from IMF/MOF. Figures include both "departmental cost" and "administrated cost."

67. As shown in **Figure 29** above, spending on EMS increased rather appreciably both in absolute value and as a share of MOH expenditure. Preliminary figure for 2014 reveals that emergency care accounted for 30% of MOH budget, up from 17% in 2010. This confirms that the EMC program has indeed been receiving increasing priority from the MOH budget.

68. Funding to the CEMC/SEMC system is allocated to the 28 regional centers and their subsidiaries to cover staff salaries, maintenance, and purchase of fuel, medicines and other consumables. Of these, staff salaries are fixed (based on the number of staff which is decided by the Council of Ministers). Recurrent cost is based on actual volume, which is proxied by indicators such as number of calls answered

[51] Data provided by the Budget and Finance Directorate to the World Bank mission in February 2015; data for admitted patients not available.

and number of treated patients. During the period 2010-2013, the share of staff salary in the total "departmental cost" ranged from 77%-83% (MOH reports, respective years).

69. The EMC program also provides funding to emergency departments in the multi-profile hospitals to cover mainly the maintenance cost for providing EMS. The amount in 2014 was BGN million 13.7, which accounts for about 12% of the EMC program spending in the same year (MOH, 2015)[52]. The total funding for each medical treatment facility is determined on the basis of the summed evaluation of three parameters for relative share: for population served, the volume of activities carried out, and the amount paid the previous year. For the regions in which there is more than one medical treatment facility, the funding is allocated proportionally to the volume of activities carried out in the respective facility. Further, a coefficient for level of competence is applied to the amount determined based on the 3 parameters depending on the level of care of the treatment facility, as follows: Level III – 1.3; Level II – 1.0; Level I – 0.7. The level of funding cannot be less than 90% and more than 115% of the amount paid in the previous year. In 2014, the total amount paid was equivalent to about 20 BGN per patient.

2.4. Pharmaceuticals

70. In this section we outline those elements of Bulgaria's health financing system pertaining to medicines. We begin with an overview of the market and expenditure trends, and then briefly describe financing and access elements.

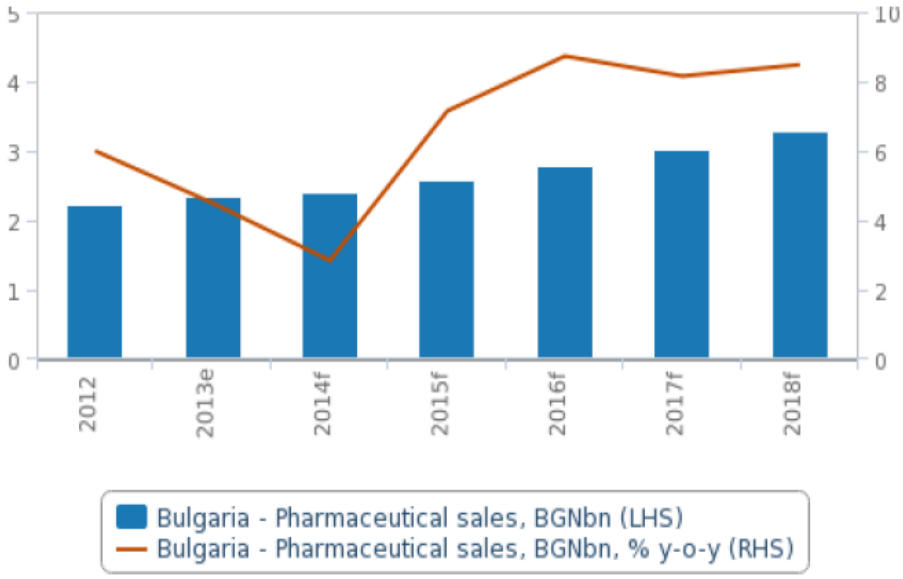
2.4.1. Background: the Bulgarian pharmaceutical market

71. The Bulgarian pharmaceutical market is one of the EU's smallest, but has grown strongly over the past few years, and the pharmaceutical industry is one of the fastest growing sectors of the Bulgarian economy.[53] The market was valued at BGN 2.1 bn in 2011, representing 12% growth over 2010, and grew another 10.5% to a value of BGN 2.32 bn (USD 1.57 bn) over 2011- 2013.[53] This has been mainly attributed to two factors: increased NHIF expenditure on oncology and other high cost medicines, and consumer spending on over the counter (OTC) products. Growth in recent years may also have been stimulated at least in part, by the harmonization of Bulgarian regulatory processes with EU regulations, which occurred in preparation for Bulgaria's EU accession in January 2007. [53]

[52] Data provided by the Budget and Finance Directorate to the World Bank mission in February 2015

[53] Ministry of Foreign Affairs, Denmark. Pharmaceutical and Healthcare Sector, Bulgaria, 2014. At http://bulgarien.um.dk/da/~/media/Bulgarien/Documents/Pharmaceutics%20and%20Healthcare_2014.pdf

Figure 30 Pharmaceutical sales Bulgaria 2012-2018



From: Ministry of Foreign Affairs, Denmark. Pharmaceutical and Healthcare Sector, Bulgaria, 2014. At http://bulgarien.um.dk/en/~/media/Bulgarien/Documents/ Pharmaceutics%20and%20Healthcare_2014.pdf

72. Currently, medicines represent a high and arguably excessive proportion of health care expenditure (37% of total health expenditure in 200954, compared with an EU average of around 25%).55 Out of pocket (OOP) costs on pharmaceuticals are also extremely high, with the 2012 preliminary National Health accounts suggesting they may amount to as much as 81% of total expenditure.

73. Hospital consumption accounted for around 18% of the market in 2009, with another 18% being ambulatory care medicines reimbursed by the NHIF, and with OTC medicines making up nearly 17% of the total market (the rest is non-reimbursed prescription medicines).[56]

2.4.2. Regulatory framework

74. The principal legislation underpinning pharmaceutical regulation and policy in Bulgaria is the Medicinal Products in Human Medicine Act (MPHMA).57 The law was drafted in 2007 to align the Bulgarian regulatory framework with European standards, but has since undergone up to twenty amendments.[56]

75. The scope of the MPHMA is broad, covering the role and responsibilities of the Bulgarian Drug Agency (BDA), as well as provisions relating to the pricing of prescription and over-the-counter (OTC)

[54] 2012 NHA data put the figure at 40 percent.

[55] Rohova M, Dimova A et al. Balancing regulation and free markets: the Bulgarian pharmaceutical sector. *Eurohealth* 2013; Vol.19, No.1.

[56] Andre G et al. *Pharmaceutical Health Information System (PHIS) Pharma Profile, Bulgaria 2010.*

[57] Medicinal Products in Human Medicine Act 2007. At http://en.bda.bg/images/stories/documents/ legal_acts/ZLPHM_en.pdf

medicines[58] and the establishment and maintenance of the Positive Drug List (PDL). For product registration it provides for centralized, decentralized and national procedures.

76. In addition to the MPHMA and the various amendments to it, the sector is also subject to a significant number or other laws and ordinances. Of particular relevance are:

- ✓ Health Law (1 January 2005);
- ✓ Health Facilities Law (5 July 1999);
- ✓ Ordinance on the Terms, Rules and Procedure for Regulation and Registration of Prices for Medicinal Products (30 April 2013);
- ✓ Ordinance № 4 on the terms and conditions for prescribing and dispensing of medicines (4 March 2009);
- ✓ Ordinance № 10 on the terms and conditions of payment for medicinal products, dietary food under Art. 262, para 6, pt.1 of the MPHMA, as well as medicinal products for health related activities under Art. 82, para 2, pt. 3 of the Health Act (24 March 2009)
- ✓ Ordinance № 28 on the structure, terms and conditions of work of the pharmacies and nomenclature of medicinal products (9 December 2008);
- ✓ Ordinance № 34 on the terms and conditions for payment from the state budget for the treatment of diseases outside the scope of mandatory health insurance (25 November 2005);
- ✓ Ordinance № 38 defining the list of diseases for which medicines, medical devices and dietary foods for outpatient treatment fully or partially paid for by the NHIF (16 November 2004);
- ✓ Ordinance № 39 on the principles and requirements of Good Distribution Practice (13 September 2007);
- ✓ Ordinance № 40 of for determining the basic package of health services guaranteed by the NHIF budget (24 November 2004).

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77. **The BDA** is a regulatory agency reporting to the Ministry of Health, responsible for the quality, efficacy and safety of medicinal products. Its role includes:

- ✓ Marketing authorization for medicines;
- ✓ Authorization and oversight of manufacturing, import, wholesaling and retailing of medicines;
- ✓ Authorization and oversight of clinical trials;
- ✓ Advertising;
- ✓ Pharmacovigilance and drug information; and
- ✓ Classification (scheduling) of medicines;

[58] In conjunction with the Ordinance on the Terms, Rules and Procedure for Regulation and Registration *of Prices for Medicinal Products*, effective 30 April 2013

78. The BDA is funded in part from the budget of the Ministry of Health as well as from revenues generated by its activities, which include fees for laboratory analyses, application and evaluation fees, annual registration charges, and GMP inspections. Tariffs are set by the Council of Ministers.

2.4.3. Drug selection and pricing

79. A 2011 amendment to the MPHMA replaced two separate Commissions with responsibility for pricing of pharmaceuticals and management of the Positive Drug List respectively, with a single new entity, the National Council on Prices and Reimbursement of Medicinal Products (the Pricing Council).[59] The Pricing Council registers the maximum retail selling prices of over-the-counter medicines and makes decisions on the inclusion and pricing of medicines on the Positive Drug List (PDL), as well as setting maximum (ceiling) prices for all other medicines[60]. The price-setting mechanisms and processes are outlined in the MPHMA and set out in more detail in the 2013 *Ordinance on the Terms, Rules and Procedure for Regulation and Registration of Prices for Medicinal Products* (the Pricing Ordinance).[61] The Pricing Council's role also includes approving, revoking, or modifying pharmaco-therapeutic guidelines that include criteria to assess the effectiveness of the therapy, as well as recommendations for treatment algorithms proposed by the National Consultants, various medical societies and other clinical experts.

80. The Pricing Council is a state budget supported legal entity, with the status of a state commission based in the city of Sofia. It comprises a chair and 6 members (3 of whom must be physicians or pharmacists, 2 economists and 2 lawyers, all with experience in their specialties of not less than 5 years) and is supported by a Secretariat. [62] The Pricing Council meets *weekly*, and direct updates to the reimbursement list (RL) *fortnightly,* which variously involve changes to prices, available brands, and levels of reimbursement for any of the existing medicines on the reimbursement list. Prices may also be routinely adjusted for inflation. The MPHMA also sets out timeframes for the Pricing Council's decision-making which are:

- ✓ 60 days for listing and pricing of new prescription medicines to be included in the PDL;
- ✓ 30 days for listing and pricing of generic medicines, and for setting maximum prices for prescription medicines not subject to reimbursement and over-the-counter (OTC) products; from the date of filing of the application with the Pricing Council.

81. The primary price-setting mechanism is international (external) reference pricing. For new prescription medicines ex-factory prices are determined by considering 'official' prices in ten primary (Romania, France, Latvia, Greece, Slovakia, Lithuania, Portugal, Italy, Slovenia, Spain and Denmark) and seven secondary (Belgium, the Czech Republic, Denmark, Estonia, Finland, Poland and Hungary) EU member states. The Bulgarian ex-manufacturer price is then set at the level of the *lowest* price among these jurisdictions. Links to the sources of the pricing information are provided on the Pricing Council website.[63]

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[59] See http://www.ncpr.bg/en

[60] The Pricing Council thus sets the price of all drugs marketed in Bulgaria. The positive drug list (PDL) is the more restrictive list of drugs which are (to a varying degree) paid from public funds. The reimbursement list is the list of outpatient medicines reimbursed by the NHIF (Annex 1)

[61] *Ordinance on the Terms, Rules and Procedure for Regulation and Registration of Prices for Medicinal Products*, effective 30 April 2013. At http://www.ncpr.bg/en/regulations/bulgarian-legislation/regulations/. This supersedes Ordinance 10 of 24 March 2009 on the Terms and Conditions for Payment of Drug Products.

[62] See http://www.ncpr.bg/en/ncprmp/structure/organogram

[63] http://www.ncpr.bg/images/Referentni_darjavi/Tablica%20za%20saita_03.10.2014-ENGLISH.htm

82. The ex-factory price of the *first* generic version of a medicine listed on the PDL may not exceed 80% of the ex-factory price of the reference product included in the PDL. Thereafter generic pricing is subject to external referencing. For OTC medicines the Pricing Council simply records the maximum retail prices proposed by the producer or importer.

83. The Positive Drug List comprises four annexes:

- ✓ Annex I (the Reimbursement List): lists those outpatient medicines paid for by the NHIF and the level of subsidy they receive, as established by the Health Insurance Act (HIA)[64];
- ✓ Annex II: lists medicines funded from the budgets of 'medical-treatment' facilities;
- ✓ Annex III: lists medicines for the treatment of HIV/AIDS, certain communicable diseases, orphan drugs, oncology medicines which are outside the scope of the HIA, as well as vaccines for compulsory immunizations; and
- ✓ Annex IV: sets out the ceiling prices for medicines not covered by the HIA or the NHIF, including OTC medicines.

84. Chapter 6 of the Pricing Ordinance sets out the criteria for the inclusion of medicines in the PDL. To be considered for listing, the medicine must first have marketing approval in Bulgaria, as well as evidence of coverage by health insurance programs in at least five of the 10 primary reference countries**.** For new medicines, a range of clinical parameters and 'pharmacoeconomic indicators' are then evaluated, from material presented in the application dossier submitted by the drug's manufacturer or supplier. The 'pharmacoeconomic indicators' include the cost of therapy; a comparison of the costs of therapy with available alternatives; the cost-benefit ratio; an economic evaluation of the additional benefits offered by the therapy; and an analysis of anticipated budget impact. For each group of criteria a number of 'points' is awarded**,** with clinical factors receiving a maximum of 95 points, and pharmacoeconomic factors a maximum of 40 points. A minimum of 60 points is required for approval, thus a product reflecting a high degree of clinical effectiveness may be approved even if scoring poorly on economic factors.

85. A Pricing Council decision to refuse an application to include, change or exclude a medicine from the PDL, or to endorse a proposed price is appealable to the Transparency Commission (TC). The TC is also established by the MPHMA, with members appointed by the Council of Ministers from nominations from the Minister of Health, the Ministry of Health, the Ministry of Labour and Social Policy, the Bulgarian Drug Agency, the National Health Insurance Fund, the Bulgarian Physicians' Union, the Bulgarian Dentists' Union, the Bulgarian Pharmacists' Union, and from patient and pharmaceutical industry organizations.

86. The Pricing Ordinance also sets out the procedures for determining the amount of reimbursement of products in the Reimbursement List. For multi-source products containing the same INN in the same pharmaceutical form, the amount of reimbursement is set at the level of the cheapest product as determined by the cost per Defined Daily Dose (DDD).[65] Therapeutic reference pricing is also applied across different molecules within the same ATC subgroup where the products have been shown to be of similar efficacy and safety for treatment of a particular indication - often referred to as 'cluster reference pricing'. The benchmark or reference price is calculated according to the lowest cost/DDD in the cluster.

[64] The reimbursement list in Annex 1 also includes some medical devices such as glucose test strips and stoma appliances.

[65] The Defined Daily Dose (DDD) is the assumed average maintenance dose per day for a drug used for its main indication in adults. **Importantly**, the DDD is a unit of measurement and does not necessarily reflect the recommended or actual prescribed dose. Moreover, an observation that two drugs for the same indication have the same DDD does not imply that they are of equivalent efficacy.

Therapeutic reference pricing is not applied to medicines considered to have narrow therapeutic indices (eg anti-convulsants, immuno-suppressants).

87. Levels of reimbursement differ according to perceived clinical significance. All products in Annex III, as well as those in Annex I (the Reimbursement List) for chronic diseases causing 'severe disruptions in the quality or life or disablement and requiring prolonged treatment' are subject to full (100%) reimbursement. Medicines for chronic diseases with widespread prevalence attract 75% cover; for all others reimbursement is *up to* 50%, with the actual level determined by a complex assessment of a range of factors that include whether use of the product is considered to be essential, preventive, palliative, symptomatic or for maintenance treatment; the social significance of the condition under treatment; the duration of treatment; accepted treatment algorithms; the number of patients with the condition; expenditure in the preceding year; and budgetary capacity. For some reimbursed products NHIF pays as little as 10% of the reference price.

88. The PDL is published by the Pricing Council, and is updated on the 2nd and 16th day of each month. However new products are only added on the 1st January each year, and the Pricing Council may change the level of reimbursement of a medicine in PDL once a year, although price changes can occur more frequently. The ceiling price can be increased no earlier than 12 months after the last approval of the price. However if the applicant wishes to reduce the ceiling price, this can occur at any time. [66]

2.4.4. Procurement and payment

89. For medicines used in in-patient facilities (Annex II) procurement procedures fall within the scope of the Public Procurement Act. Each public hospital undertakes the procurement annually. Prices cannot exceed those established by the Pricing Council. The costs of medicines used in hospitals are included in the estimations of the costs of the CCPs, thus medicines for use in in-patients should theoretically be fully covered by hospital budgets. However patients with chronic diseases who receive medicines subsidized by NHIF in outpatient settings are supposed to bring their medicines with them when hospitalized.

90. For outpatient medicines the NHIF is responsible for payment in accordance with the decisions of the Pricing Council and the specified levels of subsidy. It has no role in the disposition of the PDL, though representatives of NHIF attend meetings of the Pricing Council and may make representations to it.

91. In 2012, the MOH transferred responsibility for payment for a list of specialty medicines from it to the NHIF. These are 100% reimbursed and include certain oncology drugs funded outside the CCPs, as well as drugs for post-transplant immunosuppression, and various orphan diseases. Although some funds followed the transfer, they are increasingly insufficient to meet demand, and NHIF has only limited capacity to moderate prescribing. Oncology outpatient treatment is provided for breast, endometrial, renal and prostate cancers etc.. Expenditure on oncology medicines is one of the fastest growing areas of expenditure, and demand routinely outstrips the amounts budgeted. Table 12 shows the magnitude and growth in NHIF medicines reimbursement over 2011-2013.

[66] Center for Corruption and Organised Crime Prevention, Council of Ministers**.** *Analysis of drug policy in the Republic of Bulgaria in order to prepare proposals against corrupt practices*.

Table 12: Magnitude and growth in NHIF medicines reimbursement over 2011-2013[67]

Group	Reimbursement value 2011 (BGN)	Reimbursement value 2012 (BGN)	Reimbursement value 2013 (BGN)	Growth 2011-2013
Digestion and metabolism	92,808,240	104,747,617	117,120,031	26%
Blood & blood forming organs	32,824,625	31,318,475	43,739,413	33%
Cardiovascular	85,977,845	92,560,215	85,446,570	-1%
Genitourinary system	7,365,411	9,541,809	9,439,385	28%
Hormonal drugs for systemic use	4,275,308	6,078,292	6,802,846	59%
Anti-infectives for systemic use	9,585,803	13,759,580	14,694,574	53%
Antineoplastic & immunomodulatory drugs	57,207,328	72,330,816	88,998,443	56%
Musculoskeletal system	1,484,054	1,582,023	1,647,346	11%
Nervous system	76,839,656	70,244,941	61,120,038	-20%
Anti-parasitics	143,278	164,268	157,412	10%
Respiratory system	70,171,764	79,307,232	82,691,317	18%
Sensory organs	9,159,309	9,434,214	7,796,674	-15%
Various	5,236,690	7,740,345	8,483,802	62%
Monitors and test- strips	8,757,904	8,814,316	9,093,592	4%
Dietary foods	1,141,747	1,336,403	1,520,639	33%
Medical devices	10,184,124	10,651,520	11,252,539	10%
Total	**473,163,086**	**519,612,066**	**550,004,621**	**16%**

2.4.5. Distribution and supply chain

92. The Bulgarian pharmaceutical industry consists of around 30 domestic companies, and a number of international companies with local manufacturing/packaging, the largest of which is Actavis. The largest local producer is Sopharma, which is heavily vertically integrated with a wholesaling operation and ownership of a large number of pharmacies.

93. As of December 2014 there were 273 registered wholesalers in Bulgaria, with more than 320 warehouses. However, just five wholesalers supply more than 80% of the market.

94. In January 2014, there were 4,217 registered pharmacies in Bulgaria, of which approximately half were authorized to dispense NHIF subsidized prescriptions. Prescription medicines may only be dispensed and sold in pharmacies, whereas over-the-counter (OTC) medicines may be sold in both pharmacies and 'drug stores'. According to the Ministry of Health in 2010 there were 965 drug stores registered in Bulgaria. While one individual may only own a maximum of four pharmacies, the same individual may own multiple entities of which each, in turn, owns up to four pharmacies, thereby controlling a large network and creating scope for anti-competitive behaviour. One network of around 300 pharmacies is owned by a single entity, which also owns a wholesaler.

[67] From the document Draft Concept Paper on Bulgarian National Drug Policy – "КОНЦЕПЦИЯ ЗА ЛЕКАРСТВЕНА ПОЛИТИКА"

95. Wholesale and retail mark-ups, set by the Ministry of Health, are proportional to drug costs, and are regressive. Wholesale mark-ups range from 4-7%, with a maximum of BGN 10. Retail mark-ups vary from 16-20%, with a maximum of BGN 25. These are added along with 20% VAT to form the maximum retail price via a complex formula (see Table 13).

Table 13: Wholesale and retail markups for medicines

Ex-Factory Price			Wholesale Price					Retail Price				
Price (BGN)	VAT (BGN)	Total with VAT	Margin (%)	Margin (BGN)	Price (BGN)	VAT (BGN)	Total with VAT	Margin (%)	Margin (BGN)	Price (BGN)	VAT (BGN	Total with VAT
5	1.00	6.00	7%	0.35	5.35	1.07	6.42	20%	1.00	6.35	1.27	7.62
10	2.00	12.00	7%	0.70	10.70	2.14	12.84	20%	2.00	12.70	2.54	15.24
30	6.00	36.00	6%	1.80	31.80	6.36	38.16	18%	5.40	37.20	7.44	44.64
50	10.00	60.00	4%	2.00	52.00	10.40	62.40	16%	8.00	60.00	12.00	72.00
100	20.00	120.00	4%	4.00	104.00	20.80	124.8	16%	16.00	120.00	24.00	144.00
200	40.00	240.00	4%	8.00	208.00	41.60	249.6	16%	25.00	233.00	46.60	279.60
500	100.00	600.00	4%	10.00	510.00	102.00	612.00	16%	25.00	535.00	107.00	642.00

96. In addition to statutory mark-ups, pharmacies revenues include dispensing fees of 1 euro per prescription (not per item), but this is only payable for prescriptions containing items that are 100% reimbursed by the NHIF. Because dispensing fees are low and retail margins proportional to drug costs, this creates incentives for pharmacists to dispense more expensive medicines.

2.4.6. Prescribing and dispensing

97. Prescribing by international non-proprietary name is not required and pharmacists are not legally permitted to dispense anything other than brand of the product specified in the prescription. In practice however there is anecdotal evidence that because of the proportional nature of retail margins substitution does occur in favour of higher priced products, and these are also favored where dispensing occurs without a prescription.

98. While direct to consumer advertising of prescription medicines is not permitted, pharmaceutical industry promotion to prescribers is allowed and is thought to be influential in driving prescribing in favour of more expensive products. There has been some criticism concerning the effectiveness of the BDA in exercising control and supervision of the advertising market.

99. Anecdotally there is also high degree of mistrust of generic medicines and a lack of understanding of the evaluation processes or requirements for their marketing approval. Where a physician prescribes a medicine with a price higher than the reference or benchmark price, the patient must pay the difference out of pocket.

100. In addition, many drugs are obtained without prescription, in part because of low and unpredictable rates of NHIF reimbursement and therefore of OOP costs, but also because this enables patients to avoid the cost and time of consulting a physician. Only medicines prescribed by a GP or specialist and purchased in a NHIF-contracted pharmacy are reimbursed. Sales of prescription medicines via the internet are not permitted in Bulgaria.

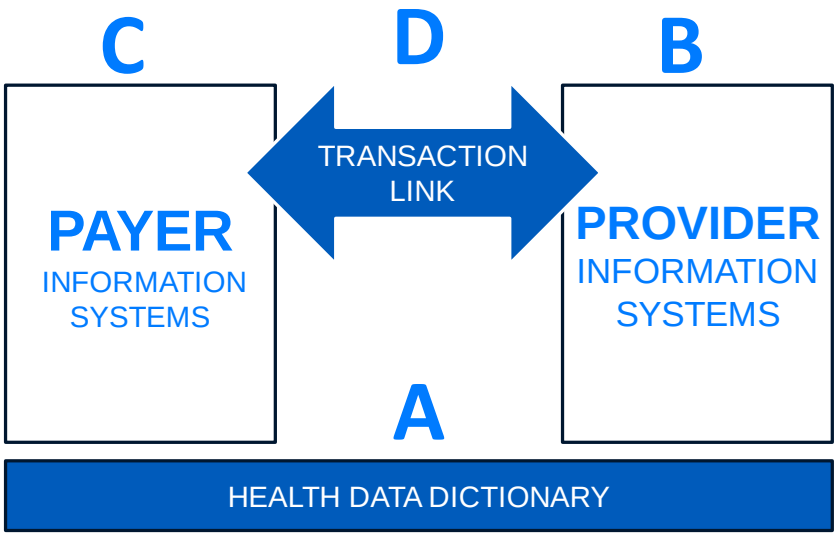
2.5. Health management information systems

101. A well-functioning, modern, integrated and reliable health management information system (HMIS) is absolutely crucial to the operation of any modern healthcare delivery system, and perhaps equally indispensable to the operation of smoothly functioning health financing processes. While healthcare in general lags others productivity-intensive industries by perhaps as much as 30 years in deploying full function information systems, this trend is now beginning to be reversed, given the push from health financing schemes which are becoming ever more complex to execute. Without adequate systems, transactions require ever-larger staffs, suffer human errors, and create ever-longer delays in payments to providers.

2.5.1. A framework to describe and assess the performance of information systems supporting financing

102. In the context of an aging population, the fiscal pressure on heath financing systems is unlikely to recede. Thus the complexity of health insurance schemes and the pressure on efficiency in health delivery will only continue to increase. The management of a modern health financing system – which in the case of Bulgaria means a health insurance fund - requires a solid yet flexible capacity to forecast needs (actuarial analysis), analyze and monitor the use of funds (fund management), adjudicate claims (claims processing) and adequate accounting strength (financial accounting and reporting). In some ways, the minimum standards for a health insurance information system could be compared to those of a relatively large financial bank. More specifically however, a health insurance information ecosystem has 4 main components, each of which must function well for the system overall to function well. These four components are depicted in Figure 31 and described in turn below.

Figure 31: Components of the environment of a Health Insurance Information System



(A) **Standards-setting** is the first and probably most crucial step in creating an appropriate environment. Without consistent coding standards, consistent forms (both electronic and paper-based forms for claims, for appeals, for authorizations for services), and consistent definitions for common statistics[68] there cannot be interoperability between the provider information systems (which supply claims and receives payments) and the payer information system (which must adjudicate claims and initiative payments).

(B) The information systems at the hospitals (usually called Hospital Information Systems), at the clinics (Clinic Information Systems), at the Pharmacies, at the Laboratories, etc. are bundled into a category called **Provider Information Systems[69]**. These systems are crucial since, using a retail model analogy, they are at the point-of-service where costs are actually incurred (as medical services are rendered). So collecting information as near as possible to the source of where the service is incurred is important, and thus Hospital Information Systems (and their kin) have become more and more real-time, being fed with information before, during, and immediately after services are rendered. Building such systems means that computers move from the "back office" to the direct "line of fire", i.e. they are used directly by caregivers, and data is collected as services are rendered.

(C) The **Health Insurance Information System** (HIIS or "Payer" Information System)[70] itself is also indeed crucial and intricate. This system often becomes the largest system in the health industry overall, sometimes the largest in an entire country (depending on the complexity of the health finance method being implemented). Unlike Provider Information Systems which are now well understood and are fairly ubiquitous in health facilities around the world in all but the poorest of countries, Payer Information Systems are more frequently one-of-a-kind custom-made software systems crafted for a specific environment, scheme or country. This makes them complex, costly to develop, and even more expensive to maintain. Fewer people understand HIIS designs, fewer vendors have had experience in developing and supporting them, and governments in general pay less attention to these systems because they are less visible – hidden inside in the health insurance "factory" which, if it is running well, is far out of sight and taken for granted.

(D) Finally, and important to make this all work together, are the **communication links between provider and payer**. The day of passing paper between these "arms-length partners" has passed. These transactions must flow electronically, with little friction, in a timely and secure way. Shared data (with proper controls and security, of course) becomes available to all stakeholders, the quality and timeliness of these data are improved, and the ultimate usefulness of data flowing in this channel is optimized. The long-sought after quest for data which can more accurately

[68] Some examples: What do we *mean* by Occupancy Rate? What do we *mean* by Nosocomial Infection Rate and how can it be consistently measured?

[69] For our purposes we use the terms Provider Information System and Hospital Information System synonymously. However, rigorously there are some subtle differences, as the former term can include systems in health venues other than hospitals, such as polyclinics and primary care clinics.

[70] For our purposes we use the terms Payer Information System and Health Insurance Information System synonymously. However, rigorously there are some subtle differences, depending on the nature of the payer(s) involved.

measure quality of outcomes and utilization of resources can be accomplished if robust communication links are put in place. In most countries, a subtle shift is taking place away from the era of stringing together point-to-point connections between providers and payer(s) toward an era in which closely managed and optimized star-networks[71] of connections have arisen, including various forms of clearinghouses for the specific purpose of routing transactions reliably between financial partners.

103. The following subsection briefly discusses how each component is organized in Bulgaria.

2.5.2. The Health Data Dictionary and other Information Standards

104. The container for health information standards is often called the Health Data Dictionary (HDD). Countries build their HDD in one of two ways:

105. *Top Down* – In this method a working group (or groups) meet over the course of perhaps a year to propose the national standards for coding, definitions for common terms, standardization of forms, etc. At the conclusion of their work, they ask the Ministry of Health and other stakeholders for comments and to ultimately accept their standards and agree to enforce them. Vendors and other systems builders are given some time (usually 2 years) to retrofit their existing (legacy) systems so as to make them compatible with the new standards. Vendors can even possibly be forced from the marketplace if they do not comply within a reasonable time. This way the Ministry can assure that every system can indeed "speak the same language".

106. *Bottom U*p – In this method, standards evolve, as *ad hoc* standards, and become accepted over time as a result of their widespread use by systems in the field. Incremental changes are made from time-to-*time* to improve them or to move to the latest coding standards[72] but otherwise they evolve in a natural, organic way in responses to changes in medical practice, legislation and regulation.

107. Bulgaria is currently building its standards from the bottom up. Its standards have evolved as a result of the presence of a small number of active vendors of Provider Information Systems. This has caused a relatively high degree of standardization and, by result, strong acceptance of the existing standards.

108. One of *the* unique features of the Bulgarian coding system is the CCP (Clinical Care Pathway) as the "case classifier" for hospital claims. This case-rate-based convention entangles a number of clinical parameters and legislative ordinances into the hospital payment scheme. The mandated clinical characteristics of a case are combined with the details of particular ordinances to prescribe if a specific case meets the qualifications of a given CCP code. Thus this mixture of clinical parameters and ordinances makes adjudicating claims by computer very challenging.

[71] A star network is simply a network through which all stakeholders communicate through a single point. At the center of the "star" can be a passive hub which merely routes messages between stakeholders, or it can be an intelligent point at which some edits can be run, some contextual data gleaned, and statistics generated. The earliest form of these "intelligent hubs" became known as clearinghouses, and today we see the trend to toward ever smarter "Smart Clearinghouses" which can play an important function organizing and tracking the flow of documents which pass through its gates.

[72] Coding standards of course can, and do change. The current standard for diagnostic coding is "ICD-10". The next revision of the International Classification of Disease, ICD-11, will be released by the WHO sometime in 2017.

2.5.3. Provider Information Systems in Bulgaria's health facilities

109. In Bulgaria, unlike in most other countries of the EU, the market for Provider Information Systems is dominated by a very limited set of 2-3 vendors. These most common systems in Bulgaria are used both in the public and the private sector, particularly for hospitals. From a system's perspective, this presents an advantage, as in many countries these two sectors of the market tend to develop along different pathways and favor different vendors. In the case of Bulgaria, the market dominance of the large vendors has injected some discipline in the market, and as was pointed out above, has given rise to some useful de facto standards which are often largely missing in many other countries. However, there is also a downside – the fewer dominant vendors may have slowed down the pace of innovation in recent years given the lack of emergence of up-start competitors who might try to unseat today's leading vendors.

110. However, a rapid review of the products available in hospitals and among all providers (including primary care and specialty care) suggests that the vendors in this marketplace have done a better than adequate job of implementing modern functionality into their systems, as well as making them compatible with transmissions both to the NHIF as well as the MOH. In general, the systems are consistent with other countries of Bulgaria's economic development, offering similar financial, clinical and administrative functionality.

2.5.4. Health Insurance Information System [HIIS] at NHIF

111. The NHIF has operated 3 different systems since the first in 1991. Each time, the development work was "started from scratch" and there is little evidence that the lessons learned from the earlier versions were adequately addressed in later incarnations. Despite long experience with earlier HIIS systems and while Bulgaria's provider-side systems demonstrate reasonable functionality, the current system at NHIF is disappointing and limited.

A DANGER AT NHIF REGARDING ITS HIIS SYSTEM

During our discussions with NHIF in conjunction with the work of this report, we discovered that their current HIIS system is currently without maintenance and support from its vendor. The staff of NHIF is also unable to maintain the system because they lack the source code by which to do so.

This is a serious and potentially critical situation. Without ongoing maintenance, the NHIF risks having to abandon automation support for NHIF altogether should the system fail for whatever reason. This would cause disruption, delays in payment and a serious crisis in the operation of the NHIF.

112. The most recent system, built by BULL-Siveko, an international partnership (Bulgaria-Romania-France, the chief technical component is Romanian), was delivered in 2008 and last upgraded in 2010. Its cost has been variously estimated at about BGN 7 million, although it is likely that total expenditures from 2008-2014 amount to much more (estimated 3x) when factoring in indirect costs.

113. The system warranty expired 3 years after delivery and there does not appear to be any work ongoing for maintaining or upgrading the system since the last upgrade in 2010. The source code for the system is effectively still held by the vendor, although a copy of an old version (which is now of questionable utility) is held in escrow. Thus the staff of NHIF is largely hamstrung by the fact that they could not themselves intervene in a systems crisis even if they wished to do so. Relations with the vendor are strained and even informal conversations between client and vendor appear rare.

114. This situation poses serious challenges to the NHIF operations as the information system simply cannot be adapted to reflect the frequent regulatory changes in the NHIF environment. Increasingly, when a new requirement comes into play, the NHIF has had no alternative but to abandon those functions of

the system which no longer are in agreement with current laws and regulations. Little by little, the NHIF has had no choice but to revert to a manual process (read, paper-based processing) as these modules continue to be abandoned. Even the still-automated processes frequently also require paper submissions (therefore creating "double-work" and "paper bloat"!) because certain elements of the electronic submission no longer meet current regulatory demands.

2.5.5. Transaction links between payer and providers, and between Providers

115. Health Finance transactions require the careful orchestration of responsibilities between payer and provider. Each plays an important role (as buyer and as seller of services) to make sure that the underlying financial transaction is processed successfully, correctly and (hopefully) quickly. Thus the carrier of this information between the two parties, the transaction link, is important.

116. Transaction links do exist with all major providers, and are of adequate bandwidth and do appear to work adequately. The other links, which are the links to the Ministry, and, even more importantly, the links between providers themselves (for exchanging referrals, medical protocols, etc.) are not so well implemented. These latter links are mostly *ad hoc*, and lack central management.

2.5.6. A brief summary of current HMIS systems in Bulgaria

117. Given current demands on the Provider Information Systems, Bulgaria's systems function adequately. Providers seem relatively satisfied with the systems which are in place, and providers are able to send claims electronically to the NHIF for payment, which is the most crucial requirement for such systems as it relates to supporting the health financing function. Obviously the first requirement of such systems should be the smooth functioning and operation of the work of the health care delivery system, that of treating patients by serving up information when and where it is needed to clinicians and allied health workers.

118. The HIIS (Health Insurance Information System) is far more problematic. It is slowly deteriorating for lack of adequate support, and the NHIF is therefore reverting step-by-step to a manual (read, human-labor-based, paper-based) system of processing. In our opinion, the government has no alternative but to directly address this issue and restore adequate maintenance or it is likely the system might fail outright which could lead to further serious deterioration of service levels at the NHIF.

119. Finally, we look to the future. Can these systems support the new burden of responding to any significant reorganization of information processes in the health sector in Bulgaria? This is of course the key focus of this discussion. Are the systems ready to take on additional responsibilities? Can the existing systems be expanded to offer additional services or must a new architecture and a different approach be taken? This is the topic of discussions regarding HMIS in the next chapters.

Chapter 3. Assessment of health financing system performance

1. This chapter contains an assessment of the performance of Bulgaria's health financing system in terms of global comparisons, trends over time relative to neighboring countries and EU averages, and the efficiency of spending. It uses the methodology described in the introduction and in particular international benchmarking of Bulgaria on many dimensions, specific analyses based on micro-data, and the findings from both the global and Bulgaria-specific health policy literature.

2. In analyzing the performance of Bulgaria's health financing system, it is important to keep in mind that it results from numerous public and private flows of funds, most importantly the NHIF and OOP spending[73], each potentially having very different performance impacts and being subject to different policy levers.

3. As discussed previously, the NHIF is the largest *single unified* source of funding in the Bulgarian health system, accounting for 40 percent of all health spending, in principle covering the entire population and pooling health risks. Through its design, it embeds some core principles in the system and a key question is whether of course it succeeds in meeting them. At the same time, out-of-pocket payments from millions of Bulgarian citizens comprise 47 percent of all health spending. These large amounts of un-pooled OOP payments raise serious questions about the equity, financial protection, and purchasing efficiency aspects of the system. Thus, in analyzing the various aspects of financing performance, whether dealing with purchasing and risk pooling efficiency and/or equity, efficiency, and sustainability of revenue raising, one needs to take into account the differential impacts of each of these two major financing sources in addition to their combined impact.

4. The health financing performance assessment in this chapter is based on level and trend analyses, global comparisons, analyses of household budget and NHIF data. First levels, trends and global comparisons for various health financing expenditure and revenue measures are presented. Second, equity, financial protection, and risk pooling effectiveness are assessed in detail by analyzing household budget data. Third, purchasing efficiency is assessed by analyzing the current purchasing arrangements and their inherent efficiency, quality, and access incentives. The fourth section assesses Bulgaria's performance in obtaining value for money in the pharmaceutical sector. Lastly, some preliminary findings from the underlying data from an actuarial model currently being developed for this study to assess the current and future solvency and sustainability of the NHIF and overall public health system are discussed.

5. In summary, this chapter shows that while public health expenditure in Bulgaria is average for a country of its income level, pervasive private and in particular out-of-pocket expenditure explains an above average total expenditure. Unsurprisingly, this translates into a poor performance when it comes to providing financial protection to the population, both currently insured individuals as well as the 7 to 10 percent of uninsured Bulgarians. The efficiency analysis of NHIF contracting methods and pharmaceutical purchasing practices suggest that they also contribute to the available public funding being used sub-optimally and limiting financial protection.

[73] This is not meant to suggest that the composition of Bulgaria's public spending is not problematic as the relatively lower non-NHIF public spending on basic public heath activities compared to hospitals has important impacts on health outcomes and equity.

3.1. Trends and global comparisons in health financing in Bulgaria: expenditures and revenues

6. This section summarizes the levels, trends over time and global comparisons holding income constant for 2012 for a range of health financing measures. The full analysis of all these measures is contained in Annex 1 of this document. In particular the following financing measures are analyzed: total, public, private, and OOP health spending in US$ (in exchange rates and 'international dollars' which correct for cost-of-living differences using purchasing power parities – PPPs), total and per capita, and as a share of the overall economy (GDP). Also overall public revenue and expenditure efforts are assessed through global comparisons of government revenues and expenditures as a share of GDP, and prioritization is assessed through a global comparison of health spending as a share of the overall government budget. As discussed in the introduction, these various measures are used as there is no one overall 'right' way to determine 'appropriate' health spending levels and trends within a given country. Each measure provides complementary information about health spending performance.

3.1.1. Trends in expenditure: level and breakdown between public and private

7. While per capita health spending in Bulgaria is still below EU averages, correcting for income, Bulgaria spends more than other comparable income countries in the rest of the world. As described in Chapter 2, total expenditure in Bulgaria has increased from 5.2 to 8 percent of GDP between 1995 and 2012. Over the same period, per capita health spending in exchange rates increased from $US82 to $566, while in PPPs it increased from $US295 to $1,139. Compared to regional neighbors, Bulgaria's total per capita health spending started from a much lower base but its upward trend of increase tended to mirror those of regional neighbors like Romania and Croatia. Still, it remains lower than the EU-12 and EU-15 averages of 1,160 and 4,379 US dollars per capita, respectively, in 2012 (Figure 32). At the same time, in terms of global comparisons in 2012, total health spending in per capita terms (Figure 33) and as a share of GDP[74] is above average relative to countries with similar levels of income.

Figure 32: Total health spending per capita (current US$): Bulgaria and comparators; 1995-2012

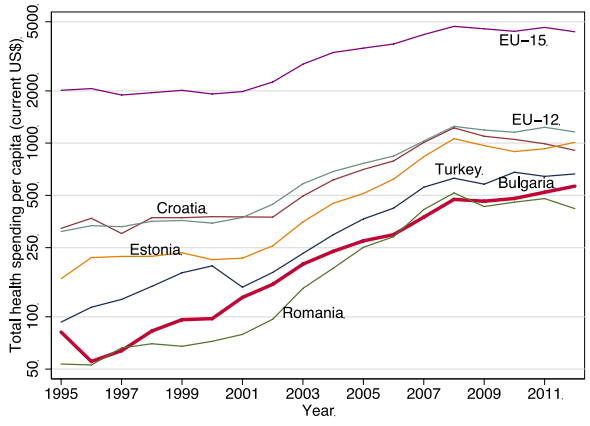
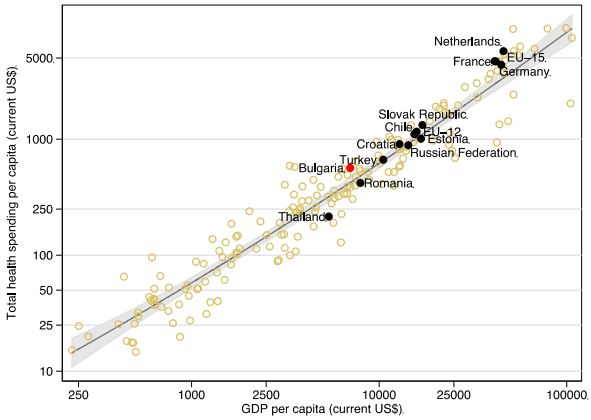


Figure 33: Total Health Expenditure Per Capita versus Income Per Capita in Current US$, 2012)



Source: World Development Indicators and WHO NHA, 2014

[74] See Annex. Some supporting graphs are not explicitly referenced in the body of the text but are presented in the Annex.

8. Public spending on health in Bulgaria is rather similar to comparable income countries. Public spending on health can be measured in a number of ways including: as shares of total health spending and GDP, public spending per capita in exchange-rate-based and international dollars, and public spending on health as a share of all public spending – which measures the relative priority given to health compared with other public expenditure. In 2012, public health spending represented 51 percent of total health spending. As a share of GDP, this constituted 4.1 percent. In per capita terms, public health spending was 291 in exchange rate based US dollars. Figure 34 and Figure 35 provide global comparisons for 2012 (additional ones are in the Annex). Public health spending is about average for all measures**,** except for the public share of total health spending which is slightly below average[75]. At around 12 percent, public health spending as a share of the total government budget is slightly above average, showing that Bulgaria gives slightly more priority to health within its budget allocations compared to other similar income countries on average.

Figure 34: Public Health Expenditure Per Capita versus Income Per Capita in Current US$, 2012

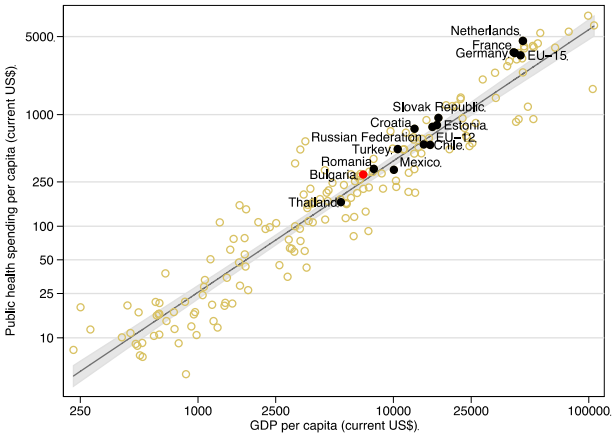
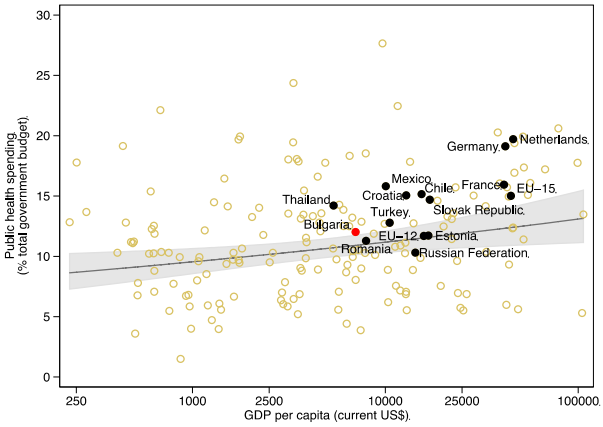


Figure 35: Public Health Expenditure as a Share of Total Government Expenditure versus Income Per Capita, 2012



Source: World Development Indicators and WHO NHA, 2014

9. Bulgaria however is clearly an outlier when it comes to private and in particular out-of-pocket expenditures. Chapter 2 highlighted the rapid growth of private expenditure on health since 1995. The level of private spending in a health system has very important implications for financial protection and the equity of the system. Private spending comes out of households' budgets and is thus more likely to be constrained by wealth, while driven by need. Private insurance can provide some financial protection through the pooling of risks and their redistribution between healthy and sick individuals and households, but, in the absence of public subsidies, not between the poor and better off. Out-of-pocket payments are thus likely to directly impact the household's financial status and can push households into poverty. In fact, the World Health Organization considers that a system in which out-of-pocket payments represent more than 20 percent of total expenditure cannot be expected to protect people from falling into poverty due to unexpected high health costs. Given that out-of-pocket payments account for almost 98 percent of all private health spending, the following discussion focuses on the former indicator[76].

[75] This is the result of higher than average private expenditure rather than below average public expenditure per se.

[76] All analyses and global comparisons of private expenditure are presented in the Annex.

10. Out-of-pocket payments which limit the financial risk protection provided by the system are remarkably high in Bulgaria. As a share of total health spending (47 percent), as a share of GDP (3.8 percent), and in per capita terms ($268 in exchange rates and $540 in PPP), OOP is significantly above global averages (see for instance Figure 36). Bulgaria thus is far from meeting the WHO criterion of financial protection, as OOP is significantly higher than the threshold of 15-20 percent as a share of total health spending. Further, comparisons with neighboring countries highlight that the situation has deteriorated markedly over time: OOP has increased by more than 20 percentage points from 1995 until 2012 (Figure 37). Figure 38 also highlights that countries such as Thailand, Chile, Mexico and Turkey, which started either from a similar or higher base, have been able to make tremendous progress in reducing out-of-pocket expenditure.

Figure 36: Out-of-Pocket Expenditure Per Capita versus Income Per Capita Current US$, 2012

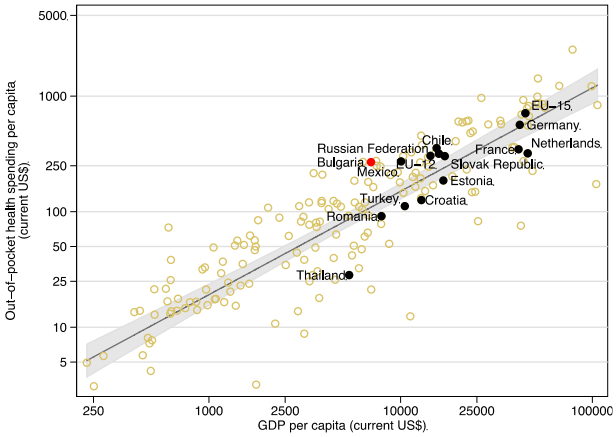
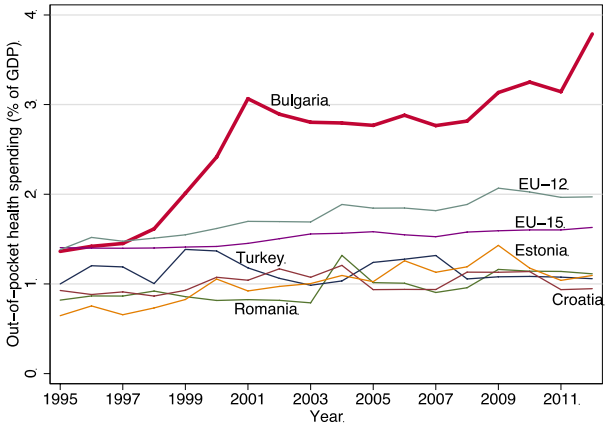
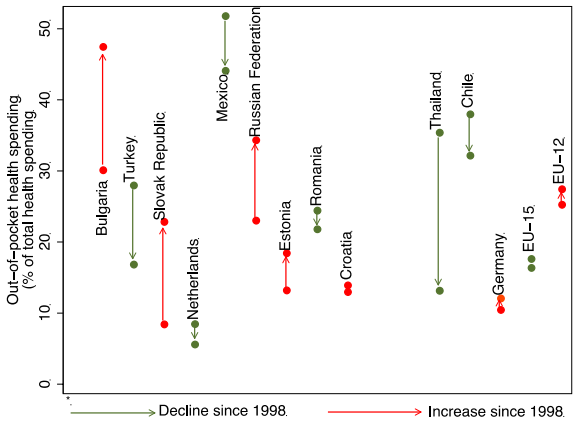


Figure 37: Out-of-pocket health spending as a share of GDP: Bulgaria and comparators; 1995-2012



Source: World Development Indicators and WHO NHA, 2014
Note: x-axis log scale.

Figure 38: Changes in out-of-pocket share (1998-2012)



Source: World Development Indicators & WHO (2014)

11. In sum, relative to both EU averages and neighboring countries, while total and public health spending increases mirror those of regional comparators, private and particularly OOP shares far exceed them and have increased significantly. This is rather counter to the well-established relationship of diminishing

private (and OOP) shares being associated with increasing GDPs and potentially problematic in terms of financial protection to households and equity, assumptions which will be further explored below.

3.1.2. Trends in government finance and prioritization of health

12. Comparisons suggest that in the context of an overall prudent fiscal policy, Bulgaria gives relative priority to health. Figure 39 and Figure 40 respectively show Bulgaria's total government spending relative to GDP (i.e., expenditure effort) and total revenues relative to GDP (revenue effort). Both are slightly above average compared to other similar income countries. **Figure 41** plots health as a share of overall government expenditures thus denoting the prioritization of health in the budget, which is also slightly above the global trend lines. As shown in Annex 1, Bulgaria's health prioritization trend mirrors that of neighboring countries and the EU averages.

Figure 39: General Government Expenditure Share of GDP versus GDP Per Capita, 2012

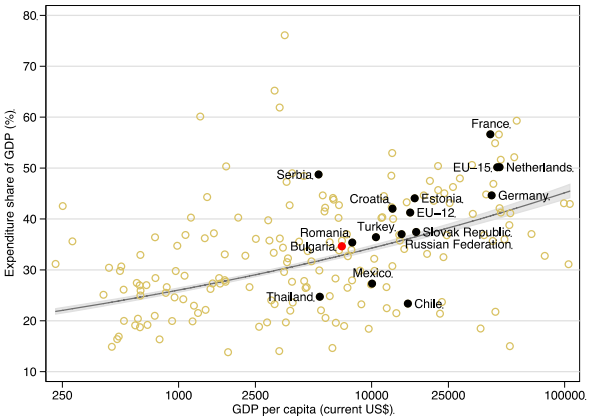
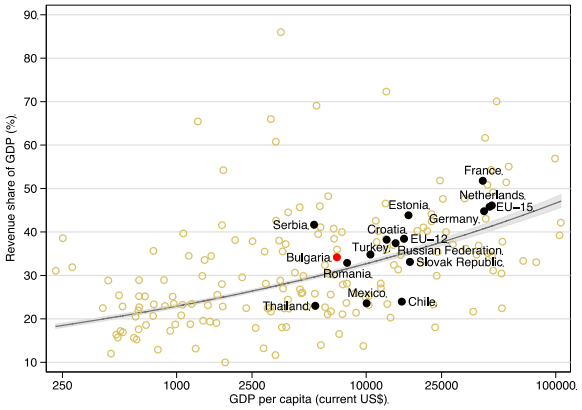
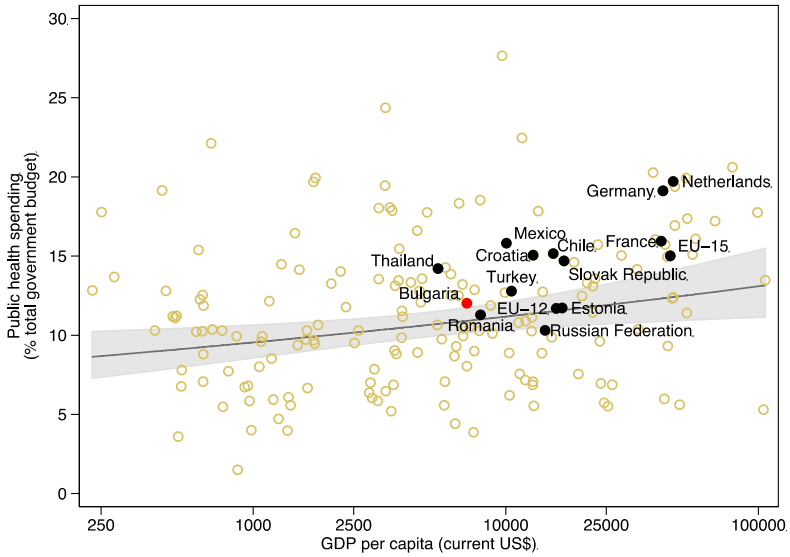


Figure 40: General Government Revenue as a Share of GDP versus GDP Per Capita, 2012



Source: World Development Indicators, WHO NHA, NSI NHA 2014

Figure 41: Public Health Expenditure as a Share of Total Government Expenditure versus Income Per Capita, 2012



Source: Source: World Development Indicators, WHO NHA, NSI NHA 2014. Both axes log scale.

Table 14: Nominal elasticities of health and Government spending, 1995-2012

	1999-2012	2005-2012
Public Health Spending relative to GDP	0.970	0.930
Government revenue relative to GDP	0.928	0.770
Government expenditures relative to GDP	0.929	1.031
Public health spending relative to government expenditures	1.036	0.898

Source: IMF World Economic Outlook and WHO, 2014

13. Further insights into Bulgaria's fiscal behavior can be gleaned from changes over time in revenues and expenditures relative to GDP as well as changing public health spending relative to changes in overall public spending (Table 14). Although Bulgaria's current public revenue and spending efforts are slightly above those of other comparable income countries, from 1999-2012, both revenues and expenditures grew 7 percent per year *less* rapidly than GDP. In the most recent period (2005-2012) period, revenues grew 23 percent *less* rapidly than GDP, while expenditures grew 3.1 percent *more* rapidly, indicative of government deficits in the wake of the global financial crisis. In terms of the prioritization of health in the budget, in recent years (2005-2012) expenditure on health has grown some 10 percent per year *less* rapidly than total public expenditure. Yet, overall, between 1999 and 2012 public spending on health has grown 3.6 percent per year *more* rapidly than overall government spending.

14. In sum, despite a recent curbing in the growth of health expenditure relative to other government spending, it appears that health has been given priority relative to other sectors in the last 15 years which

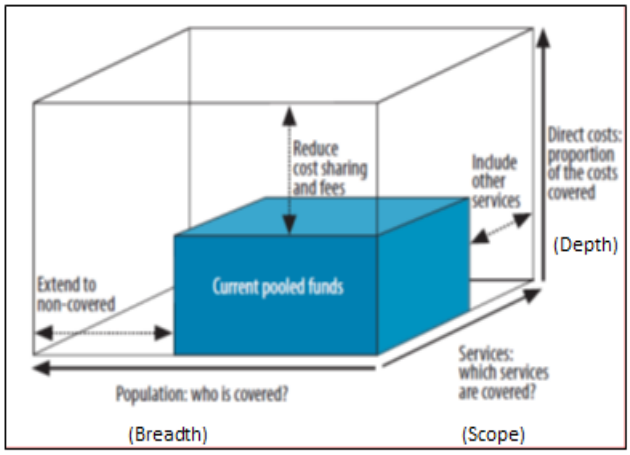
contributes to explaining its slightly above-average level (11.8%) as a share of overall public expenditure. These trends coupled with the total, public and private health spending to GDP elasticities discussed above, help explain (i) the absolute increases in total, public, and private health spending; (ii) the increasing total and private shares as a percent of total health spending, coupled with a declining public share; (iii) large increases in the total and private spending shares of GDP and a relative constant public share; and, (iv) an increasing government health spending share of the total government budget.

3.2. Financial protection and equity

15. The core objective of any health insurance system is to protect individuals from unexpected large health expenditures that they cannot afford. Given heterogeneity in terms of both health needs and ability to pay, providing adequate financial protection on an equitable basis generally entails cross-subsidies from healthy to sick and from rich to poor.

16. More generally, the goal of universal health coverage, as espoused by the World Health Organization, is to ensure that individuals have access to the health services that they need without suffering financial hardship when paying for them. To assess whether a health system is meeting these objectives, three dimensions of health coverage are typically considered: (i) its breadth (or who is covered), (ii) its scope (which services are covered), and (iii) its depth (the proportion of health care expenditures which are covered) (Figure 42).

Figure 42: The dimensions of health insurance coverage



Source: World Health Organization (2010).

17. This section first discusses coverage of the population based on available information. In particular, it summarizes the evidence in insurance coverage. Indeed while according to the law, all citizens should be insured, it is well established that this is not the case, but there are many questions around how many people are not covered and who these individuals are. Secondly, data on out of pocket payments – both existing and new – are analyzed to determine the extent to which the Bulgarian health financing system contributes to providing financial protection to the population and if it does so in an equitable way.[77]

[77] According to the OECD household out of pocket payments comprise: "cost-sharing, self-medication and other expenditure paid directly by private households, irrespective of whether the contact with the health care system was established on referral or on the patient's own initiative."

Lastly, NHIF data on expenditure by age, gender and district, is analyzed to discuss distribution in the system.

3.2.1. Insurance coverage

3.2.1.1. How many uninsured?

18. Identifying who exactly is covered and who has access to the NHIF benefits package is not a straightforward question in Bulgaria. In 2013, estimates for those lacking coverage range from a high of 24.4 percent of the population to a low of 7.3 percent (Table 15 and Table 16). The true rate likely lies somewhere in between, and considerable measurement issues related to seasonal migration and adequate representation of minority groups make triangulation of multiple data sources necessary.

19. According to the Health Systems in Transitions series of the European Observatory on Health Systems and Policies (Dimova et al, 2012), 23 percent of the Bulgarian population lacked insurance coverage in 2011. An analysis by the National Revenue Agency (NRA) provides an explanation for this number. Under the Health insurance Act, all Bulgarian citizens should be covered[78]. The NRA compares data on the number of Bulgarian citizens with health insurance at one point in time (from the *NHIF Register of Health Insured Persons*) to estimates of the total number of Bulgarian citizens (from the *Single Civil Registration and Administrative Services to the Population* system). Using this method, it finds that 24.4 percent of Bulgarian citizens lack coverage.

20. However, most experts agree that this high estimate does not reflect reality because many Bulgarians live abroad, more or less permanently. While there is no accurate information on the number of Bulgarian citizens living abroad (who by law can be covered by the NHIF's benefits package but likely can receive coverage from their host countries as well), it is estimated to be high (more than 1.1 million individuals). Once this is taken into account and the NRA restricts its attention solely to Bulgarian citizens who are current residents of Bulgaria, they estimate that 11.8 percent of the population lacks coverage.

Table 15: Past estimates of the uninsured population

Source	Estimate	Year	Calculation
Media/HiT (Dimova et al, 2012)	23%	2011	Not known
National Revenue Agency (1)	24.4%	2013	Includes all citizens of Bulgaria
National Revenue Agency (2)	11.8%	2013	Adjusts for estimates of citizens permanently living abroad
Nationally representative survey in Atanasova et al (2012)	12.1% 9.3%	2011 2012	Does not use population weights

Sources: Dimova et al, 2012; National Revenue Agency (2013), "Analysis of Persons Lacking Health Insurance"; Atanasova et al (2012).

21. The lower NRA figure is more in line with estimates obtained from household surveys. Using two nationally representative cross-sectional surveys, Atanasova et al (2012) estimate that 12.1 percent and

[78] Article 33. The following shall be covered by compulsory insurance provided by the National Health Insurance Fund:1. all Bulgarian nationals who are not citizens of another State as well; (etc.)

9.3 percent of the population lacked coverage in 2011 and 2012, respectively. While this study arrives at estimates in range of the NRA's estimate that takes into account long-term migration, both analyses leave some questions open. Both census data and standard household survey designs could miss minority populations, such as the Roma population or the poorest households, especially if they live in informal settlements or segregated communities that may be difficult to access by surveyors.[79] Not only would such omissions affect the estimated proportion of Bulgarian residents without insurance coverage, but they also make it difficult to accurately (i.e. representatively) estimate the coverage rates for these potentially vulnerable populations. [80]

22. Another series of nationally representative household surveys, however, was designed to avoid this issue of missing minority populations and provide separate estimates for various population groups. The Crisis Monitoring Surveys (CMS) of 2010 and 2011 and the Bulgarian Longitudinal Inclusive Society Survey (BLISS) of 2013 included a booster sample of nearly 900 communities identified by experts of the Roma population as having a predominantly Roma population. Moreover, these surveys were designed to be household panels, so it is possible to follow the same households across time and track transitions on and off insurance to obtain estimates of the stability of insurance coverage in Bulgaria.

Table 16: New estimates of uninsured population based on population-weighted surveys

Source	Estimate	Year	Calculation
Bulgarian Longitudinal Inclusive Society Survey (BLISS)	7.3%	2013	Uses weights and a booster sample of segregated communities. Sample does not include migrants.
Crisis Monitoring Survey - Round 1 (CMS 1)	6%	February 2010	Uses weights and a booster sample of segregated communities. Sample does not include migrants.
Crisis Monitoring Survey - Round 1 (CMS 2)	7.5%	October 2010	Uses weights and a booster sample of segregated communities. Sample does not include migrants.
Crisis Monitoring Survey - Round 1 (CMS 3)	7.4%	February 2011	Uses weights and a booster sample of segregated communities. Sample does not include migrants.

23. Estimates from the recent BLISS survey suggest that only 7.3 percent of Bulgarian residents lacked insurance coverage in 2013, with similar coverage rates implied by the 3 CMS rounds of 2010 and 2011 (Table 16). Like most household surveys, the BLISS and CMS samples included only households who were residing in Bulgaria at the time of the survey. Thus, seasonal migrants – in addition to those who do not

[79] Estimates from the European Commission (2011) suggest that 10.3 percent of the Bulgarian population comes from the Roma community, while the latest census suggests that the Roma account for 4.9 percent of the population.

[80] The representativeness of the basic coverage estimates in Atanasova et al (2012) may also be a concern. The estimates of the proportion of the population without insurance coverage appear to be raw means, rather than population-weighted averages, and there is nothing in the description of the survey to suggest that a self-weighting sampling design had been used.

reside permanently in another country – will not be captured by the surveys. To the extent that this group can be captured by Census data and to the extent that is has a higher propensity to be uninsured, it is reasonable to expect a representative coverage estimate from the BLISS and CMS surveys to be slightly lower than the NRA estimate.

24. In sum, the triangulation of these various sources suggest that between 7 and 8 percent of the population that lives in Bulgaria at any point in time is not covered by statutory health insurance in Bulgaria. In addition, it is likely that some people who work broad seasonally may not be insured when they come back. This would put the proportion of the uninsured somewhere between 7 and 12 percent of the Bulgarians who do not live abroad permanently. While the estimates are lower than media reports, the uninsured population still potentially poses a problem, especially if those excluded are not outside of the system by choice and cannot afford to pay the requisite premiums.

3.2.1.2. Who are the uninsured?

25. These representative household surveys also permit an analysis of heterogeneity to ascertain whether particular population groups are more or less likely to lack coverage and to gauge whether lack of coverage is associated with low socio-economic status (and thus low ability to pay for coverage). The data indeed suggest a pronounced disadvantage for minorities and populations with lower socio-economic status and for age groups whose contributions are not covered by the state. Children and the elderly – whose contribution is paid by the state and who are statutorily insured - almost uniformly have coverage (only 1 percent of those under 18 years of age and only half a percent of those over age 70 report a lack of coverage). On the other hand, 13 percent of individuals between 18 and 34 years old and 12.5 percent of those between 35 and 59 years report no coverage. Around 16.5 percent of those in the bottom quartile of a wealth distribution defined over household amenities and asset ownership did not have coverage, while only 2.7 percent of those in the highest quartile did not.[81] Nearly 35 percent of the Roma population lacked coverage, compared to 4.7 percent of the ethnically Bulgarian population (although Bulgarians still represent more than half of the uninsured). More than 11 percent of those reporting to have not worked in the previous 4 weeks lacked coverage, compared to 4.5 percent of those reporting having worked.

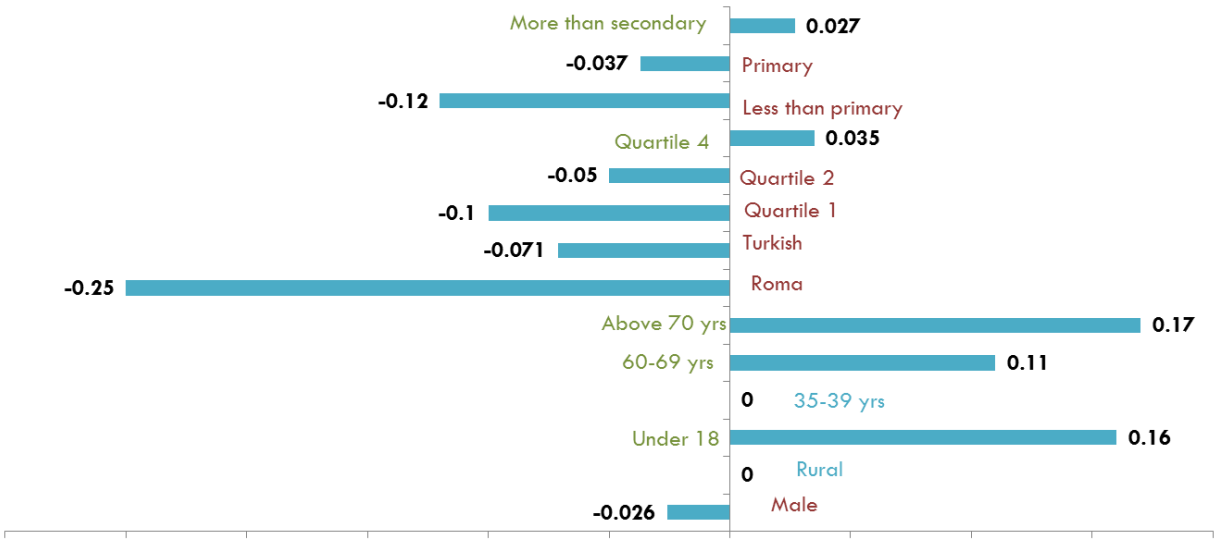
26. These patterns persist in a multiple regression framework which accounts for the fact that many of these factors may be correlated – for example, the Roma population also tends to be resource poor and to exhibit low rates of educational attainment (Figure 43).[82] The results suggest that compared to female residents, Bulgarian men are on average 2.6 percentage points less likely to be covered, when all else is equal (i.e. when all other characteristics are the same). Rural residents are statistically indistinguishable from their urban counterparts, just as individuals between the ages of 35 and 59 are indistinguishable from those between 18 and 34 years. The age groups whose contributions are handled by the state - those under 18 years and the pension-eligible population – are 11 to 17 percentage points more likely to be covered, all else equal. Compared to the third quartile of the wealth distribution, the bottom two quartiles are 10 and 5 percentage points less likely to have health insurance, while those who have not

[81] Items in the wealth index include total area of the dwelling; the availability in the dwelling of water supply, hot water, electricity, piped in gas, flush toilet, bathroom, central heating, cable TV connection, internet connection, and sewerage; and the number of televisions, video or DVD players, satellite antennae, audio systems, microwave ovens, refrigerators, freezers, and washing machines.

[82] Regression coefficients were estimated with a linear probability model so that they could be interpreted as changes in probabilities. In some instances, however, this produces predicted probabilities greater than 1. Results are robust to maximum likelihood estimation, such as a logistic regression, which does limit predicted coefficients to a range between 0 and 1.

completed primary schooling are similarly disadvantaged, as they are 12 percentage points less likely to report coverage than those who have completed a secondary education. The Roma population, even after controlling for resource poverty and low rates of educational attainment, are still 25 percentage points less likely to be covered, while the Turkish population is 7 percentage points less likely. Having a university degree confers a slight advantage in terms of coverage. All results remain virtually unchanged even when comparisons are made within each district and the effects of district specific-attributes are thus removed.

Figure 43: Estimated coefficients of a multiple regression of insurance coverage on demographic and socio-economic characteristics



Source: *BLISS 2013 data. The omitted category is a Bulgarian 18-34 yr old female with secondary education from the 3rd quartile of a wealth distribution calculated from ownership of assets and the presence of certain household amenities. Her probability of being covered is 91 percent. For each variable, the coefficient indicates the change in her probability of being insured if one characteristic changes while all other stay the same. So, if this woman was in the poorest 25 percent of households, her probability would decrease from 91 percent to 81 percent.*

27. While these figures are instructive for comparing the propensity for different population groups to report insurance coverage, they do not provide a complete picture of the composition of the uninsured as they do not account for differences in the size of each group. Despite the strong disadvantage in coverage rates, the Roma population still comprises a minority among the insured (Figure 45). The majority of uninsured individuals (54 percent) are ethnically Bulgarian. Since each quartile of the wealth distribution, by definition, contains the same number of households, if wealth played no role in coverage, a quarter of uninsured population should fall in each income quartile. The bottom quartile, however, accounts for 42 percent of the uninsured (Figure 44). As pointed by the NRA report, a substantial share of the uninsured are people who are aware they should contribute but cannot afford it.

28. This disproportionate representation of the poor among the uninsured likely does not only reflect financial constraints. Other explanatory factors include rigid eligibility criteria for social assistance, a lack of understanding by the uninsured of options available to them to obtain assistance in paying contributions, a reluctance to use them and as well as perceptions about the need for coverage. For instance, the 2009 OSI survey carried out among uninsured shower that around half of them did not know

that they could seek support from Government institutions and 20 percent did not trust they could get help. In other words, financial constraints are not the only barrier which needs to be overcome to increase coverage[83].

29. The top income quartile accounts for 10 percent (Figure 44) of the uninsured, so while clearly the majority of the uninsured are poor, a non-negligible part of the uninsured are quite well off. In fact, the top two quartiles - in other words the richest half of the population - account for nearly 30 percent of uninsured Bulgarian residents. This fraction is consistent with (i) estimates by the NRA of the population who "are aware of the fact that they owe health insurance contributions, who can afford to pay them, but are unwilling to do so" and (ii) qualitative findings that suggest a "pay-for-services-obtained" mentality towards health insurance (OSI, 2009).

Figure 44: The uninsured population by wealth quartile

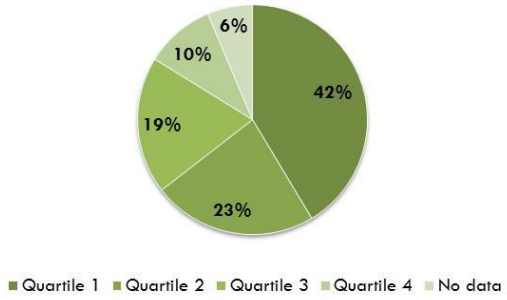
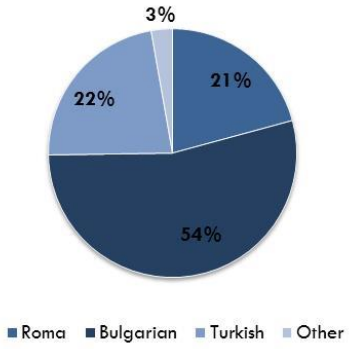


Figure 45: The uninsured population by ethnic group



Source: BLISS 2013 data

30. Consistent with the regression results – and as expected since they are covered by the state - children and the elderly account for a very small fraction of the uninsured (Figure 46). Finally, and as expected given that coverage is for a large part linked to employment, the vast majority of the uninsured are not working (Figure 47). In 2013, the NRA cites data from the NSI to estimate that more than 240,000 people had been without a job for 12 months or longer. Given that after 12 months of unemployment, individuals must pay their contributions on their own in order to receive coverage, it should not be suprising that the unemployed forgo coverage.

[83] Open Society institute (2009) Health Uninsured individuals and Health Insurance in Bulgaria

Figure 46: The uninsured population by age group

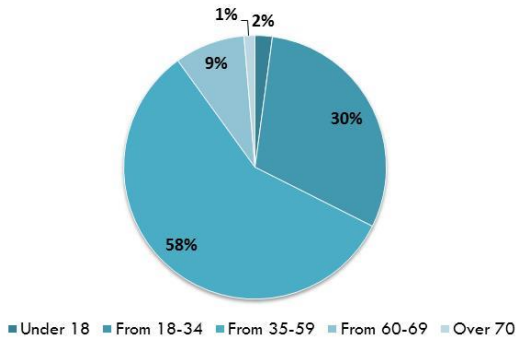
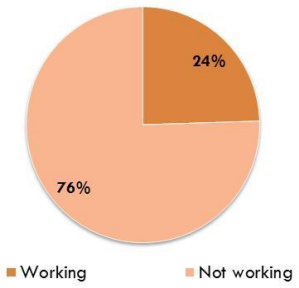


Figure 47: The uninsured population by employment status



Source: BLISS 2013 data

3.2.1.3. Stability of insurance coverage

31. Since 2010, individuals lose their statutory health insurance coverage when they fail to make three monthly contributions in a 36 month period, and some reports suggest that there is some flux when it comes to coverage – that individuals may gain and lose coverage over certain intervals (OSI report). The coverage estimates discussed above could be misleadingly low if people are constantly transitioning on and off coverage – in particular, if the set of the uninsured is constantly changing or if all individuals have a high chance of joining the uninsured for some time, however brief. Data from the CMS and BLISS surveys suggest that while around 6 percent of the Bulgarian resident population has transitioned on or off coverage between 2010 and 2013, nearly half of those lacking coverage in 2013 had been covered in 2010. Additional analyses[84] suggest greater risk for people ages 18 to 59, minority populations, the poor, and those with limited education.

32. In sum, the above analysis of representative households surveys suggests that Bulgaria is falling short of its intention of providing coverage to all citizens. Children and the elderly are well protected, but between 7.4 and 11.8 percent of of the (mostly) working age population lacks health insurance coverage at any point in time. The data further suggests that while 6 percent of the population changed coverage status between 2010 and 2013, nearly half of the uninsured in 2013 had been covered in 2010. Around a third of the uninsured could probably afford to pay for their coverage. The rest however, tend to be in poor households with limited education in which minorities are more frequently represented than in the general population.

3.2.2. Effective financial protection

33. As pointed earlier in this chapter, the proportion of total expenditure which is paid out-of-pocket in Bulgaria is substantially higher than in countries with comparable income. Patients who have to pay substantial amounts out-of-pocket may be pushed into poverty because of health care costs or may simply put in a position where they have to forego care. Although budget surveys have a certain number of limitations, and in particular cannot disentangle the effects of the three dimensions of insurance coverage

[84] Available upon request

(breadth, scope, and depth), they provide unique insights into the nature and impact of out-of-pocket payments for care. (Box 2)

34. This section of the report estimates of out-of-pocket payments and health-induced impoverishment from the Bulgarian Household Budget Survey.

Box 2: Using the Households Income and Expenditure Survey in Bulgaria to assess financial protection: strength and weaknesses

Bulgaria conducts yearly budget surveys which households provide information about how much they spend on various consumptions items as well as health care. When it comes to assessing the financial burden of health payments, surveys are known to have some biases. For instance, relatively rare events, such as access to health services, –the recall period needs to be longer which may compromise accuracy. Households are also reluctant to report informal payments. Overall, surveys, particularly if the health module is not detailed, tend to underestimate private payments and underreport of informal payments. At the same time, the budget survey is a unique source to understand the level and nature of health payments and link them to household characteristics. The NSI survey is conducted yearly. In the context of this report, the team secured access to the data for 2010 and 1013 (2007 was already available), and results of the analysis are presented in this section. One limitation of the survey is that while in 2007 expenditure was available at the individual level, in most recent waves it is not the case, therefore variations in spending cannot be correlated with individual characteristics such as age, health status or insurance coverage.

Out of pocket payments by households include cost sharing as listed in section 2.2.4 of this report, as well as direct payments by the households for goods and services not covered the NHIF or MOH, in particular medicines, medicinal products and medical devices**,** which represent a considerable share of the total according to the National Health Accounts prepared by the National Statistics Institute. **The survey instrument does not distinguish between these various types of out-of-pocket payments.**

3.2.2.1. Out of pocket payments

35. Out-of-pocket payments (OOPs) are a common metric for assessing the extent of financial protection. In Bulgaria, the share of household budget spent on health is relatively high at 5.3 percent in 2013, compared to about 3 percent on average in Western Europe (Smith and Nguyen, 2013). As expected given the trends in out-of-pocket captured in National Health Accounts data discussed earlier, this proportion has also risen steadily over time[85], as it was 3% in 1999.

[85] http://www.nsi.bg/en/content/5703/annual-data

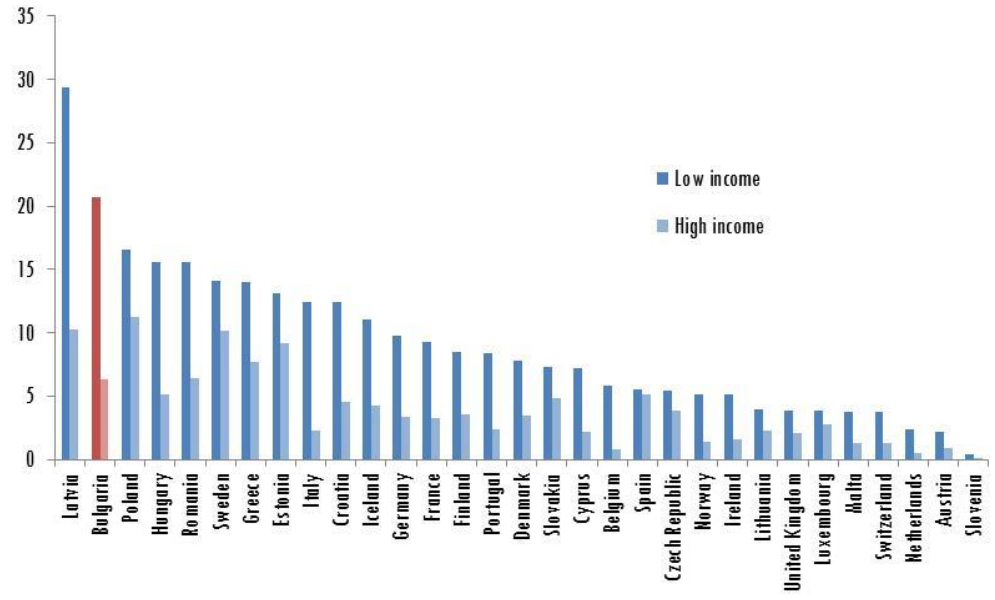
Table 17: Breakdown of out-of-pocket payments by type of care and by income quintile (2013)

Quintile	Pharmaceutical products	Other medical products	Therapeutic appliances	Medical services	Dental services	Paramedical services	Hospital services	Total
Poorest	300.6 (85%)	0.8 (0%)	9.2 (3%)	10.9 (3%)	8.6 (2%)	3.9 (1%)	20.6 (6%)	354.6
2	386.4 (84%)	2.7 (1%)	16.7 (4%)	13.7(3%)	17.2 (4%)	8.1 (2%)	17.3 (4%)	462.1
3	437.5 (72%)	3.8 (1%)	24.4 (4%)	21.1 (3%)	31.3 (5%)	10.3 (2%)	79.8 (13%)	608.2
4	390.1 (73%)	2.3 (0%)	32.7 (6%)	22.8 (4%)	43.3 (8%)	17.1 (3%)	28.3 (5%)	536.6
Richest	452.8 (64%)	3.4 (0%)	34.2 (5%)	40.7 (6%)	98.0 (14%)	36.2 (5%)	44.6 (6%)	709.9
Bulgaria	393.4 (74%)	2.6 (0%)	23.4 (4%)	21.9 (4%)	39.7 (7%)	15.1 (3%)	38.1 (7%)	534.2

36. Expenditures on drugs and medicines account for the biggest share of out-of-pocket payments. Bulgarian households spent a major portion of their OOP expenses on drugs and medicines, across all income quintiles (Table 17). Spending on drugs was 74 percent of all OOP in 2013, which mirrors the NHA findings about private expenditure on health. These high private pharmaceutical expenditures likely result from a mismatch between the objective of the NHIF pharmaceutical policy – namely, limiting the funds' financial exposure – and the broader principle of providing financial protection and access to essential drugs (see Section 4 for more detail). A multiple regression analysis of the household budget survey suggests that out-of-pocket expenditure varies across households. When household demographics and characteristics of the household head are held constant, an additional elderly person above 65 years old in a household is associated with 34 percent more OOP spending, while every child below 14 years is associated with 4 percent more.

37. Typically, the level of OOP increases with income as shown in the above table. A regression adjusting for other characteristics shows that households below the poverty line spent 51 percent less in OOPs than those above the line. Part of the difference across income groups is explained by household choices: for instance, richer households can more easily choose to pay for private services if they want to avoid long waiting periods in a queue. At the same time, lower income households are more likely to focus on care which is more necessary and may even have to forego care (which would also explain lower OOPs). Given that poorer households are typically more prone to poor health, this might suggest some foregoing of care (Atanasova, et al, 2012). Indeed, Bulgaria ranks second only to Latvia when it comes to self-reports of unmet need among the lowest income quintile, according to EU-SILC data from 2012 (Figure 48).

Figure 48: Proportion of the population declaring having foregone care

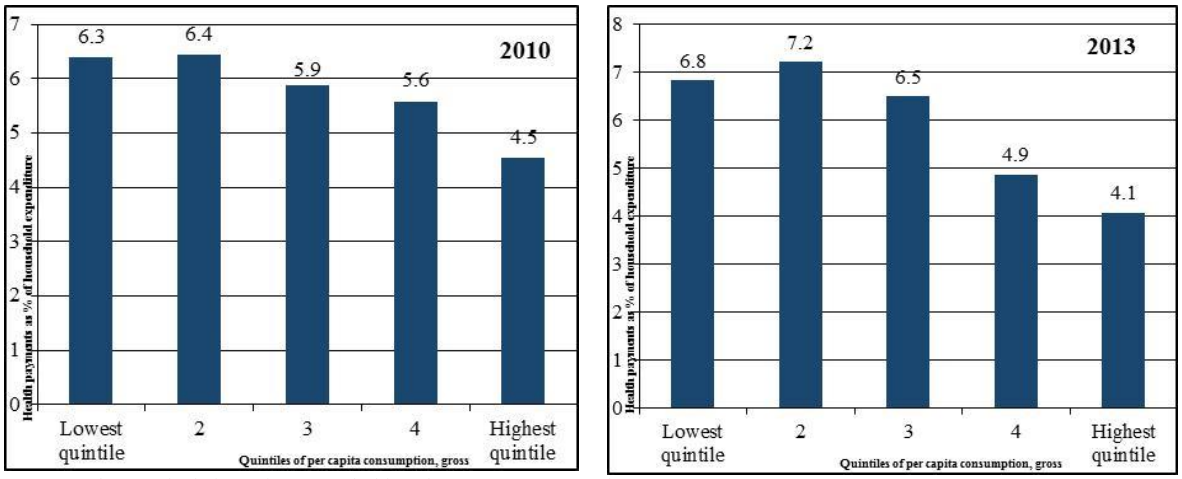


Source: EU-SILC data, 2012

3.2.2.2. Impoverishment

38. To assess the burden out-of-pocket payments in Bulgaria, a natural starting point is to examine if the proportion of their income households spend on health varies with their wealth. Figure 49 first shows a very clear gradient: the richer households are, the lower the proportion of their income spent on health. The fact that households in the poorest quintiles allocate a slightly lower share of expenditures on health care than the second quintile also suggests that they are probably limited in how much they can spend without compromising other essential necessities and that they do forego necessary health care. A comparison between 2010 and 2013 data suggests that these differences between the poorest and most affluent groups are becoming more marked over time, and the financial burden on the bottom three quintiles is increasing, while is decreasing for the better-off.

Figure 49: Health payment shares by quintiles



Source: Authors' calculation using Household Budget Survey, 2010 and 2013

39. Spending a large proportion of the household budget on health care payments may deprive households of consumption of other goods and services. The international literature deems health payments as "catastrophic" whey they represent a high proportion of household income. Table 18 shows the proportion of households for which payments represent more than various thresholds (5-40 percent). Almost 20 percent of households in Bulgaria spent 10 percent or more of their total expenditures on health care in 2010 and 2013. This figure is well above the EU-15 average of is 5.8 percent and even higher than countries such Vietnam and Bangladesh that have 15 percent of households spending above this threshold (Van Doorslaer, et al, 2007). In most ECA countries, catastrophic spending is more frequent among better-off households (Smith and Nguyen, 2013). In Bulgaria, however, catastrophic spending is more prevalent among poorer households regardless of the threshold, suggesting weak financial risk protection.

Table 18: Catastrophic expenditure headcounts, by various thresholds

	2010					2013				
	5%	10%	15%	25%	40%	5%	10%	15%	25%	40%
Lowest Quintile	38.8	24.3	15.5	3.5	1.0	47.6	27.5	13.7	3.2	0.2
2	43.6	25.2	12.1	2.5	0.4	49.5	27.7	14.2	3.3	0.1
3	39.8	20.8	9.6	1.8	0.1	45.6	21.1	10.7	2.9	0.7
4	36.4	17.7	7.5	2.1	0.5	32.4	13.7	5.7	1.8	0.2
Highest Quintile	29.9	10.6	5.1	1.8	0.3	21.8	7.9	5.0	1.7	0.6
Total	37.7	19.7	9.9	2.4	0.5	39.4	19.5	9.9	2.6	0.4

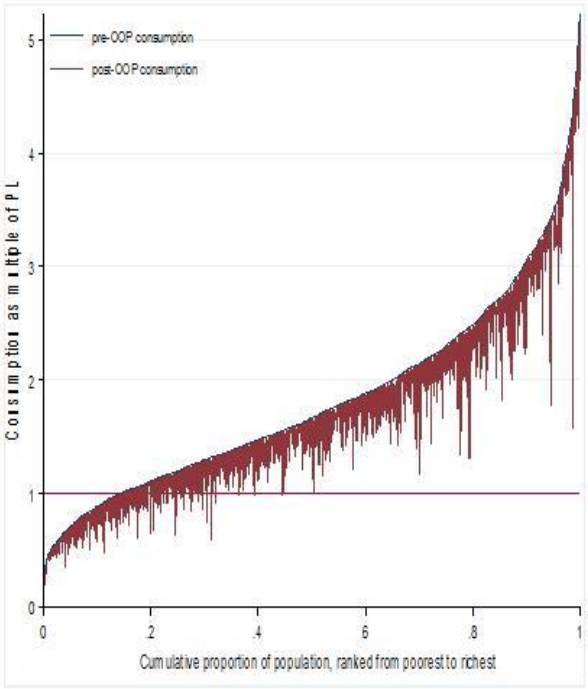
Source: Authors' calculation using Household Budget Survey, 2010 and 2013

40. Excessively high household expenditures on health payments can push some households into poverty. If a household has total consumption expenditures (pre-OOP) above the national poverty line but its total nonmedical spending (post-OOP) is below the poverty line, it could be considered to have suffered impoverishment due to OOP spending for health. Figure 50 shows households ranked by per capita consumption expenditure (x-axis) and per capita expenditure on health (y-axis). The spikes show the difference between expenditure of the household before and after health spending. For some households, particularly those near the poverty line, incurring health expenditures could push them into poverty. The figures below depict relatively weak financial risk protection, which is worsening over time. In 2013, even households in the richest quintile fell below the poverty line after spending on health.

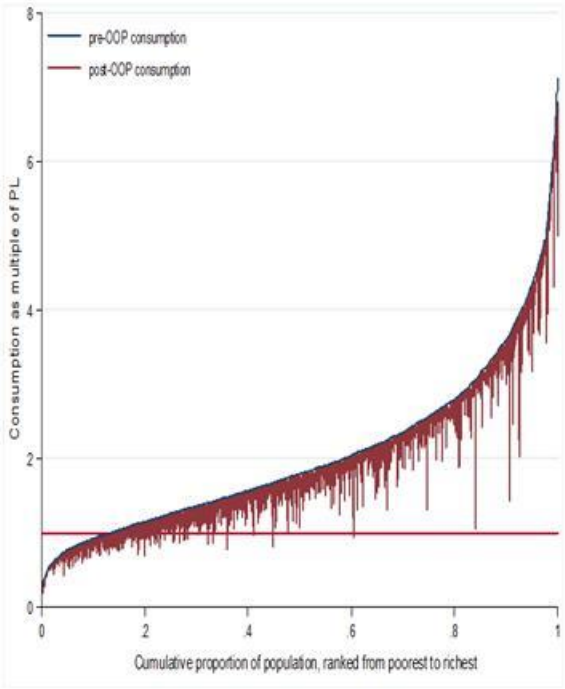
41. In 2010, 14.2 percent of the population had expenditure levels below the official poverty. When payments for medical care are subtracted from expenditure, the headcount rises to 18.0 percent (

42. Table 19). This means that 3.8 percent of the population who previously did not fall below the poverty line, fell below the line once health payments are subtracted from expenditure (those whole spikes are falling below the line in Figure 50). In 2013, this figure rose to 4.2 percent. This level is high for Bulgaria's economic level. In fact, it has the second highest level among its neighbors in the region. In contrast, only 1.3% fell below the poverty line due to health payments in Kyrgyz Republic and only 0.5% in Latvia.

Figure 50: Per capita expenditure, gross and net of health spending



2010



2013

Source: Authors' calculation using Household Budget Survey, 2010 and 2013

Table 19: Changes in poverty headcount due to health spending European Region and Bulgaria

	Gross of health payments	Net of health payments	Change
Bulgaria (2010)	14.2%	18.0%	3.8%
Bulgaria (2013)	13.1%	17.3%	4.2%
Bosnia and Herzegovina	7.4%	8.7%	1.3%
Georgia	46.6%	51.2%	4.6%
Kazakhstan	9.7%	12.4%	2.7%
Kyrgyz Republic	43.0%	44.3%	1.3%
Latvia	7.2%	7.7%	0.5%
Russian Federation	24.8%	26.8%	2.0%
Turkey	12.3%	15.7%	3.3%

Sources: Authors' calculation using Household Budget Survey, 2010 and 2013 and ECA Health Equity and Financial Risk Protection Datasheet

43. In sum, the current health system in Bulgaria does not offer much financial protection. Out of pocket payments are considerably high by international standards, as is the fraction of household expenditure devoted to the purchase of health care services and products for Bulgaria's income level. This lack of financial protection pushes large numbers of households under the poverty line– mainly those near the official poverty line but even some who otherwise would be considered wealthy.

3.2.3. Equity and redistribution

44. In addition to ensuring that households do not suffer financial hardship due to health care expenditures, an equitable health financing system would also be guided by the principle that resources are distributed according to need, not ability to pay. To ascertain the extent to which this is happening in Bulgaria, a benefits-incidence analysis would be required to check whether – for a given health status – similar amounts of public resources go to patients irrespective of their income. Data limitations preclude such an analysis, but existing data on how public funds are distributed by age gender can help shed some light on how public funds are distributed and even who pays for whom – or the extent of redistribution - in the system.

45. Data on NHIF expenditure age and gender are presented in Figure 51. The profile by age is quite typical, with infants on average incurring high expenditure, a drop in expenditure after age 5, and a progressive increase until later ages. Women in childbearing years have slightly higher expenditure than the men. Men on the other hand have noticeably higher expenditure than women after 60. Figure 52 displays the structure of expenditure by age group. While most of this expenditure can be attributed to hospitals, the share devoted to pharmaceuticals increases with age.

Figure 51: NHIF expenditure per capita by age and gender, 2013

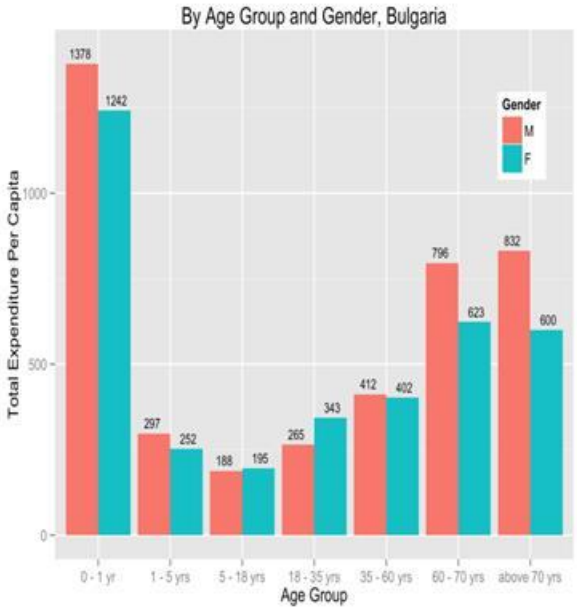
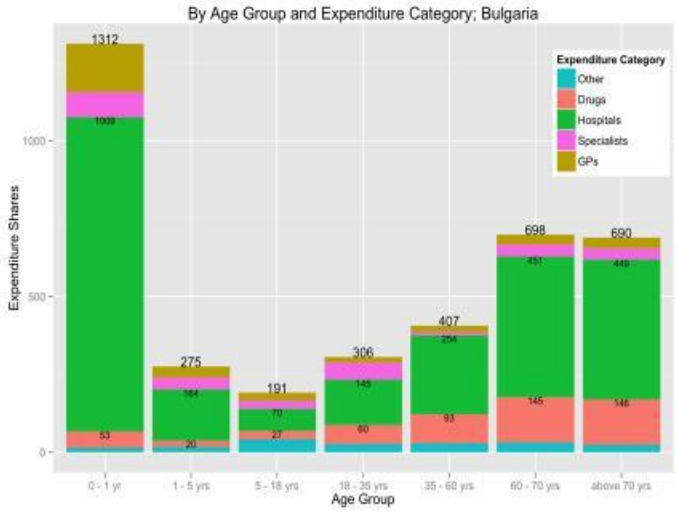
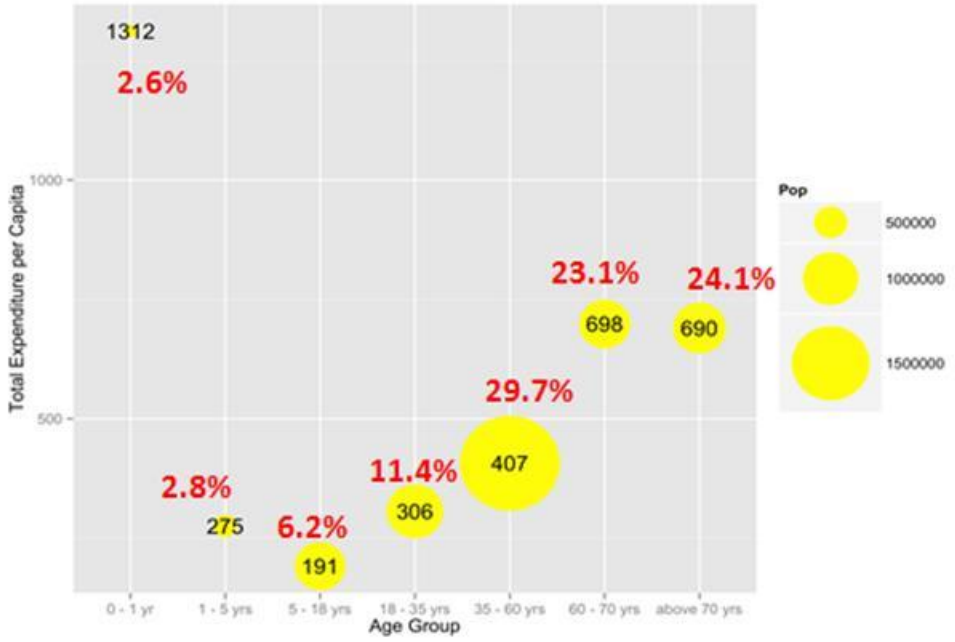


Figure 52: Expenditure per capita by age broken down by category of care.



46. Figure 53 shows how NHIF expenditures flow towards different age groups. Indeed, while infants rank the highest in terms of total expenditure per capita (BGN 1312 on average), they are a small part of the population and account for less than 3 percent of total spending. The elderly, on the other hand, account for nearly half of all spending, despite not dominating in terms of their current population share.

Figure 53: Total health expenditure per capita and share in total health expenditure by age, 2013

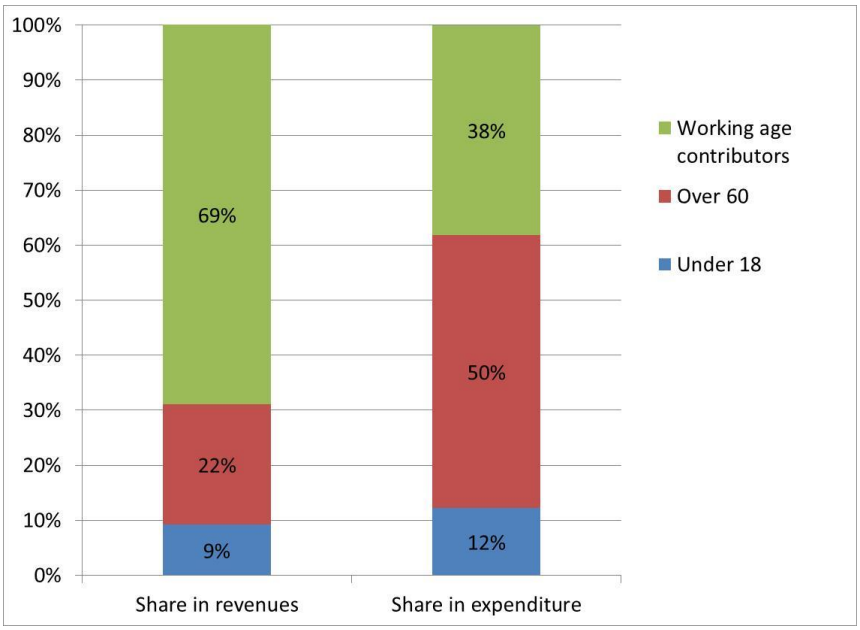


47. These data provide an opportunity to crudely assess the redistribution across generations in the Bulgarian insurance system. As described in Chapter 2, the law states how much is paid out of the government budget for the children and pensioners; data are also available on the contributions which are paid by the working-age insured. Under a number of assumptions[86], it is thus possible to compare the amount these categories represent in the NHIF revenues with the proportion of expenditure they generate.

48. **Figure 54** helps visualize the redistribution which is operative across generations. It shows that the contribution of the state on behalf of children represents around 9 percent of NHIF revenues while children account for around 13 percent of the NHIF expenditure on care. In other words, the payroll contributions from the working population contribute to financing the coverage of children. The bulk of redistribution, though, is from the working age contributors to the older genrations. State contributions for the elderly are based on their (fairly low) pensions, but their expenditure are high and they represent a large share of the population. Overall, our estimate is that for every BGN 100 Leva paid in payroll contributions, BGN 45 help cover the cost of care for the children and the elderly. It is important to highlight that countries can - and do - choose very different ways to finance subsidies which flow from the relatively healthy working age population to the younger and older generations. In Estonia for instance, insurance is entirely financed from contributions with no state contribution for children or pensioners.

[86] The main assumption it that the vast majority of contributors are above 18 and below the age of 60 (retirement age is at 60 for women and 63 for men). Other assumptions to account for the fact that the Government contributes for some categories of non-contributing adults.

Figure 54: Rough estimate of redistribution across generations operated through the health insurance law 2013



49. Thus, while it is not possible to do a complete benefits-incidence analysis in Bulgaria, data on contributions and expenditures suggest that health care resources do flow primarily from the relatively healthy working-age contributors to the elderly population that has higher health needs and to a lesser extent to children. The state makes contributions on behalf of children and the elderly that are lower than what it spends on these groups, and contributions from the working-age population fills the gap.

3.3. Purchasing efficiency for services

50. Any provider who delivers a (health) service deserves payment. The use of the term 'purchasing" to describe what could be a mere financial transition highlights that the scope of the contract between the payer and provider of health services can expand beyond that. This is especially the case when a purchaser buys services on behalf of the population as is the case for the NHIF. The purchaser is - or should be - empowered to seek value for money in the system, ensure that the services are of good quality, provided in the right setting and efficiently. In other words, the purchaser of services is in a position to influence the configuration as well as the resulting technical and allocative efficiency of service delivery as well as the consumer responsiveness of the system.

51. Payment and contracting methods thus provide the key policy levers purchasers of services can use to help achieve a set of macro objectives, such as overall cost containment, and micro objectives, including effective access and the efficient delivery of services at the facility level. Table 20, based on a recent OECD study, provides an extensive categorization of policies and their likely health system impacts and tradeoffs.

Table 20: Policies for Cost Containment and Improved Efficiency

Characteristics, impacts and tradeoffs	Impact on Expenditure		Objectives and Tradeoffs			
	Strength	Impact Lag	Financial protection and access to care	Quality of care	Responsiveness	Cost effectiveness
Macroeconomic policies aimed at expenditure restraint						
Volume controls (high tech/pharmaceuticals)	++	Short	-	-	-	+/-
Budget caps (sector and global)	+++	Short		-	-	+/-
Shifting costs to private sector (increased financing of cost by users)	++	Medium	-	+/-	+/-	+
Microeconomic policies aimed at increasing efficiency						
Demand side						
Disease prevention and health promotion	+/++	Long	+	+	None	+
Gate-keeping/triaging	+	Long	+	+	+/-	+
Care co-ordination/ Integrated care/self-care	++	Long	+	+	+/-	+/-
Supply side						
Strengthening the purchasing role of NHIF	++	Long	+/-	+	+/-	+
Further shift from hospital to ambulatory care	+++	Long	-	+/-	-	+
Improving hospital contracting/purchasing/payment systems	++	Long	None	+/-	+/-	+
Increasing hospital autonomy	+	Long	Unknown	+	+/-	+
Improving provider payment methods/incentives for hospitals (DRGs) and outpatient care	++	Long	+	+	+/-	+
Overseeing technological change and the pricing of medical goods	+/++	Long	+/-	+/-	+/-	+
Increased use of ICT for information transmission	+/++	Long	+/-	+	+/-	+/-

Note: Adapted from OECD (2010a).

52. In assessing payment systems allocative and technical efficiency it is helpful to keep in mind the following basics of all payment systems:

- ✓ There is no 'right' method.
- ✓ Purchasing systems must be tailored to the institutional realities of each health system encompassing both the demand and supply sides.
- ✓ Payment systems in which there is either a single payor or a single set of rules impacting the entire system have the largest impacts on provider behavior.
- ✓ Policy-makers need to be concerned about effects across different governmental levels, provider types, different payors (i.e., public, private HI, OOP) as well as overall health spending.

- ✓ As all payment methods have differential positive and negative impacts on costs, access, and quality, one often needs to employ multiple payment methods to accentuate the positives and offset the negatives and monitor their impacts - HMIS is critical.

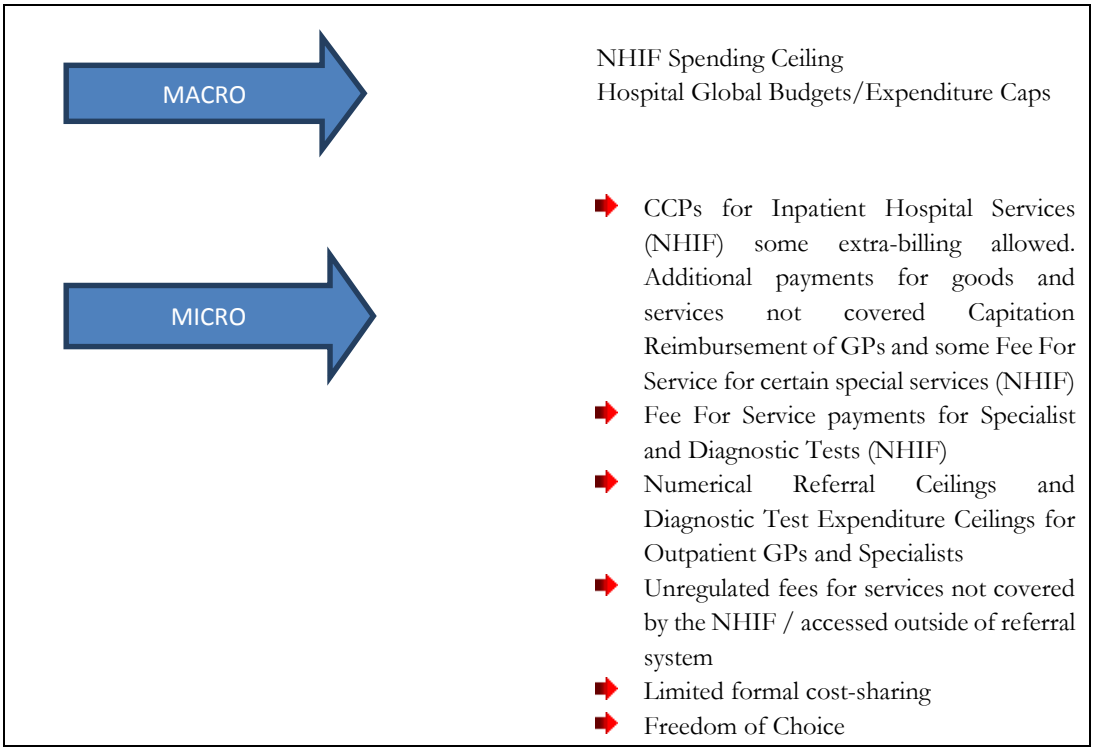
53. Assessing purchasing efficiency is difficult due to definitional, measurement, data availability, interactions among payment methods, NHIF policies regarding for instance the definition of the benefit package, cost-sharing, referral, as well as the interactions among numerous demand and supply side factors (e.g., number and location of providers, mix of providers, practice guidelines, etc.).

54. Yet, Chapter 1 highlighted that given what it is already spending on health, overall health outcomes in Bulgaria are not improving as fast as they could, which points towards an inefficiency problem. It also provided evidence that patterns of care are distorted towards hospital care to the detriment of ambulatory primary and specialized care. Given the burden of disease, this alone suggests that there is considerable allocative inefficiency in the system.

55. The following discusses whether and how the NHIF contracting and purchasing methods may contribute to the efficiency of service delivery. It focuses on the incentives inherent in the NHIF payment and contracting policies as it is the single largest purchaser of services. The NHIF with its unified set of rules affects some 40 percent of all health spending, which has important effects on provider behavior and spending levels. However, it is important to keep in mind that the single largest source of provider payment in the system is OOP. In other words, providers derive a significant share of their income from individual patients, who are the price takers of unconstrained fee-for-service. The provider-patient relationship is characterized by a strong asymmetry of information[87] which the provider can leverage, especially in a context where the details of what is covered or not by the NHIF are probably not known to the patients. These payments are most likely resulting in poor equity and little efficiency, but potentially better access and quality, depending, of course, on the payment levels.

[87] Arrow KJ. Uncertainty and the welfare economics of medical care. Am Econ Rev 1963;53: 941-73

Figure 55: Bulgaria's key cost containment/Payment strategies and policy levers



56. From a high-level perspective, Bulgaria's NHIF has adopted many of these globally accepted good practices – capitation for GPs, case payments to hospitals, budget and expenditure ceilings, referral penalties, etc.; however, the key question is whether the way they have been implemented accentuates their positive incentives and attenuates their negative ones. Figure 55 summarizes NHIFs key macro and micro payment procedures.

3.3.1. General Practitioners (GP) and specialists working in ambulatory care

57. Many countries have chosen a mixed remuneration system for GPs primarily consisting in a risk adjusted capitation which links the provider and the patients (with the possibility of changing providers at defined intervals) combined with some additional payments to incentivize desirable provider behaviors. In theory, the capitation, which renders the provider accountable for the patient's health, encourages efficiency, cost control, and preventive care. In the case of Bulgaria, the capitation is supplemented by fees for preventive services and chronic (dispensary) patients. They complement the provider's income and encourage the delivery of these services. Last, the GPs budget holding mechanism makes them accountable and puts them at risk for diagnostic tests and the specialists' referrals they give out, further strengthening cost-control. Specialists working in ambulatory care are paid on a fee-for-service basis and also manage referral and testing budgets.

58. What kind of incentives does the elaborate remuneration system generate in the Bulgarian context? First, clearly, from a macro-perspective, it caps the amount publicly spent on primary and specialist care provided in ambulatory settings (but not hospital referrals). However, at the micro-level, the analysis below suggests a number of problems.

59. The referral budget holding mechanism has a number of limitations, some of which are more critical for GPs and others which apply to both GPs and specialists.

60. First, GPs are required to refer certain types of chronic care patients (e.g., hypertension, COPD) at regular intervals, even when these patients could be effectively treated in the GP setting or do not require the service. There are also limitations to testing, For instance, GPs used to not be allowed to order diagnostic mammography for women with potential tumors and had to refer patients to a Specialist, who referred the woman for a mammogram[88]. Essentially, thus a large share of the referral budget is earmarked and GPs are constrained over how they can use it. As chronic patients represent a large share of the population, savings could probably be achieved if these patients were managed and treated by their GPs. In sum, the current NFC not only unnecessarily limits what GPs can do, but also requires what may be unnecessary referrals to specialists and hospitals. Several GPs believe that the current rules prevent them from providing more substantive care to patients at the primary care level and that the rules should be changed.

61. Secondly, while the referral caps for specialist and testing are very strict and physicians are fined for every referral beyond the limit, they are not rewarded for achieving any savings in their referral budget. In addition, as suggested in some discussions, if some physicians do receive informal payments from the specialists they refer to, they may in fact be incentivized to use their entire referral budget for the given time-period without going over (i.e., the ceiling becomes the floor).

62. A third issue is that GPs and specialists are not held accountable for unnecessarily referring patients to receive hospital-based care, which can thus be used to overcome the strict limits put on outpatient care volumes.

63. There appear to be many potential additional incentives to refer to the hospitals:

- ✓ Some services which could technically be provided on an ambulatory basis are provided in hospitals only – a referral may be the only way to access them;
- ✓ Even when a patient can be cared for in the ambulatory setting, either by a GP or a specialist or outpatient diagnostic center, for services such as CT scans or MRIs, waiting times and procedures required to obtain authorizations to perform these tests are such that a referral to the hospital might become a more effective way to ensure the patient's access to the service.
- ✓ Admitting a patient and assigning him to a CCP can result in the overall payment for the service to be significantly higher in the inpatient setting. Additionally, specialists argue that reimbursement levels for some services they could technically provide are too low for the required investments to be financed in ambulatory settings (e.g., purchase and maintenance of required equipment).
- ✓ Finally, the specialists who work both on an ambulatory basis and in hospitals may have additional incentives to refer to hospitals, as their contracts in hospitals contain some rewards for the volume of patients they treat. While specialists do not admit patients to specific hospitals, patients are very likely to present to the hospital with which their specialist is associated. The specialist can then benefit by being paid for his or her service by the NHIF, and by receiving an incentive payment from the hospital for bringing in the patient.

[88] Need to verify whether it is still the case in 2014.

64. The 2008 Sanigest report detailed additional factors which contribute to upward referrals including the lack of trust of by the population in lower levels of care and the low problem resolution capacity of the majority of primary care physicians. Critically, the primary and ambulatory specialized care systems lack a credible quality assurance framework which would be could potentially be used to measure and potentially reward the quality of care and efficiency of services delivered. Most of the rules surrounding referrals appear to be geared towards containing cost. There is no evidence – and certainly no transparent mechanism - to build consensus and demonstrate that they necessarily reflect modern evidence based practice.

3.3.2. Hospitals

65. As noted in previous sections of this report, Bulgaria has many more hospital beds, per capita, compared to both similar income-level and health-spending countries and to the EU12 and EU15 averages. This can be explained, in part, by a lack of strong planning mechanisms: Bulgaria has minimal requirements to determine whether a hospital can open, but lacks a system to determine whether another hospital is needed in a specific geographic location. The implementation of hospital master plan elaborated in 2008 to restructure service delivery is still being debated[89].

66. There are a number of ways in which the NHIF contracting and payment system contributes to exacerbating the problems.

67. First, as discussed above, providers who work in ambulatory settings are incentivized to refer patients to hospitals. Similarly, there are strong incentives for hospitals to admit patients; these factors increase the volume of admitted patients. This is one of the most powerful incentives associated with case-based financing, regardless of what tool is used (i.e., CCPs which are used in Bulgaria or DRGs used around the world). Because this incentive is so common, countries that use case-based financing closely monitor and regulate it to minimize unnecessary hospitalizations. For example, some countries utilize volume caps or budgetary limits to hold hospitals accountable for admissions. In Bulgaria, hospitals in principle are subject to volume caps which should limit the number of cases they provide. In practice, however, when allocated budgets are spent, hospitals continue to provide services and petition the NHIF for additional funding. They are often successful in obtaining funds -- although sometimes with delays. Ultimately, these expenditures are reflected in the NHIF budget either through renegotiations during the fiscal year, or by partly absorbing these costs in the subsequent year's budget. In other words, the macro-pressure to limit the growth of hospital care appears less effective than for other types of care in Bulgaria.

68. Second, and quite critically, the NHIF has no firm legal basis to refuse to contract with all hospitals approved by the MOH. Hence, the NHIF cannot obtain the well documented benefits from selective contracting. This is an issue because, as the number of hospitals and beds available in the country has grown, an increasing number of facilities are forced to share the available cases. This creates even stronger incentives for facilities to produce more and limits individual hospital's benefits from implementing any economies of scale.

69. Third, the NHIF does not appear to use formal hospital admission criteria or any sort of pre-approval process similar to what private insurers do to limit unnecessary hospitalizations. The lack of these mechanisms results in hospitals admitting any and all types of patients, whether their condition is truly acute or not. Patients may also self-refer by accessing the Emergency Department for admission. Some CCPs include language which could be interpreted as admission criteria but compliance does not appear

[89] Credes (2009) HOSPITAL MASTER PLAN AND SPECIFIC REGIONAL IMPLEMENTATION PLANS.

to be enforced through auditing mechanisms. If this language were strengthened and enforced, then CCPs could serve to curb some unnecessary hospitalizations and create incentives for patients to seek care in other settings, such as from an ambulatory clinic or a general practitioner. Another issue is that, in many cases, patients experience lower out-of-pocket costs and shorter waiting time for tests and procedures provided in the hospital rather than in ambulatory settings, which again creates an incentive for hospital admission.

70. Finally, the Clinical Care Paths (CCPs) tool that is used to finance hospital care may, itself, create inefficiencies in the health system, generate incentives for hospitals to admit patients, and/or encourage hospitals to deliver a large range of unnecessary services (see also Sanigest 2008, Credes 2009).

71. The CCPs were initially developed as clinical practice guidelines and as such remain a useful tool. They provide a common understanding of a patient's general clinical treatment pathway and the range of clinical care that is appropriate to deliver. They also include information about minimum personnel, staff, equipment, and other capacity that is necessary for hospitals to have in order to provide services in a safe and appropriate manner. These requirements can be useful to ensure patient safety and quality particularly in the absence of other guidelines or regulations such as Conditions of Participation or mandatory Hospital Accreditation. More systematic efforts could be made through to ensure that these conditions are transparently updated, aligned with international best practices and truly aimed at ensuring high quality of care. Using clinical practice guidelines or more generally quality assurance instruments and criteria as part of the contracting process is in line with best practices.

72. CCPs however were not intended as the basis for hospital financing. As this happened, the clinical tool was adapted for the financing purpose but not comprehensively or systematically. Over time this has created significant distortions. At the time of the CCPs' initial implementation in 2003, there were approximately 50 CCPs; and Bulgarian experts generally agree that they were appropriately costed, broadly clinically and resource homogenous and therefore constituted a reasonable basis to move away from input-basis of hospital financing. Subsequently, many changes were introduced resulting in the creation of new categories or the splitting of existing groups (often to create higher-valued CCPs), restrictive input requirements were added, and the contracting process morphed into a negotiation of individual CCP prices rather than an exercise based on hospital cost data.

73. Today, CCPs do not organize inpatient hospital services into clinically and resource homogenous groups, which results in under-and-overpayments for services. For example, there is only one CCP payment level for a normal delivery and a C-section despite the fact that there are significant differences in the cost. In contrast, most case-based hospital financing tools, such as Diagnosis Related Groups (DRGs) for instance strive to separate out such services so that different prices are paid in recognition of the different costs. Hospitals in Bulgaria can thus receive identical payments for more or less complex services which is not the most equitable way to distribute limited resources.

74. The fact that CCPs algorithms require certain levels of inputs to be present for the CCP to be paid (i.e., a certain number and/or type of staff, specific types of equipment, specific types of lab tests), may also be problematic on a number of levels. First, there are concerns that CCP changes can be introduced to benefit a specialty, or even specific facilities. Indeed, if a CCP is updated to mandate the use of a specific technology for that clinical pathway, only facilities that already have the appropriate equipment will be able to contract that CCP. To the extent that these requirements are important to ensure patient quality of care and safety, they are appropriate but if they are used to and restrict competition in specific market segments, by granting certain facilities a competitive advantage, even if it is only temporary, then they should be revised. In any case, these changes increase the risk that providers may drift in and out of

compliance with the CCP ordinances and standards from one year to the next — even though there have been no material changes either at the hospital or in the provision of the procedure.

75. Second, a detailed review of a few CCPs reveals that they include, in addition input requirements related to patient quality of care and safety, unnecessary, controlling requirements that more closely resemble old-style input-based financing mechanisms (under which hospitals had little or no autonomy and/or flexibility in making clinical and management decisions) such as minimum lengths of stay or the provision of certain diagnostic and laboratory tests, regardless of what is clinically indicated. This may be the case because CCPs have evolved to do more than they were intended to originally. In other words, today's CCP requirements dictate to a great extent how and what medical care must be provided to patients. This is a huge potential source of waste, and generally undermines the types of strong incentives for production efficiency and quality that are embedded in most case payment systems.

76. All provider payment systems, including CCPs and DRGs can be "gamed". However, the dangers appear greater with CCPs. Since hospitals (and physicians) select the CCP for each hospital stay rather than a computer algorithm which would assign the CCP based on raw clinical and administrative data, the risk and impact of gaming can be more severe and harder to detect than with other output-based financing systems. Physicians know exactly what requirements must be met to maximize CCP payments and are incentivized to use more complex CCPs. Some physicians even privately acknowledge that the CCP-based financing system creates incentives to manipulate clinical data to match the CCP requirements (such as by modifying lab values, or recording specific diagnoses and procedures). They also recognize that only the patient diagnosis and procedure information required to meet the CCP requirement tend to be recorded rather than a full and complete picture of the patient's health situation/status. Therefore, and somewhat paradoxically given their origin, the CCPs – because they are used for financing purpose – may undermine the integrity of health records and potentially quality of care.

77. All of this has resulted in a skewed financing mechanism. No comprehensive exercises have been attempted in recent years either to ensure that CCP prices reflect efficient resource costs or reflect best clinical practices guidelines or protocols. It is also unclear whether CCPs have been compared to other tools that describe care paths. CCPs as a tool remains probably best suited to describe clinical paths and could be revised to do just that. A different tool, developed specifically to serve as the basis of an inpatient financing system such as DRGs might be more appropriate to finance hospitals.

78. In summary, from a conceptual perspective, Bulgaria has moved from input- to output-based financing and now uses widely accepted 'good practice' international payment methodologies across care settings. Nonetheless, problems remain. The unnecessary clinical stipulations and administrative rules and requirements (unrelated to patient quality of care and safety) that are embedded in the CCPs, CCP price negotiations, and the lack of spending cap enforcement all appear to create distortions and inefficiencies in the health system. As a result, the health care system does not observe the benefits that are normally expected when a true, output-based case-based financing system is used.

3.3.3. The role of emergency medical system

79. In a sense, EMS in Bulgaria are "purchased" by the MOH. The payment method to CEMC/SEMC system is a combination of a fixed global budget (based on staff size) and an output-based budget based on actual service volume of the preceding year. This appears a reasonable method of payment. However, what could be an issue is that the share of the fixed budget is very large (78%-84% of CEMC/SEMC system budget is for salary), effectively penalizing providers that have high volume of services. Another issue is the unequal allocation of staff to different centers which are not based on catchment population or

characteristics of the terrain. The number of staff was formed on the historical principle and often on the principle of lobbying (MOH, p7).[90] Since staff salary is a major driver of cost, this means that the EMC budget is also not fairly allocated.

80. As an integral part of the health system, the emergency care system can be affected by and can affect the purchasing of other services. Specifically, the fact that GPs do not generally perform 24-hour care effectively places additional burden on the emergency care system. As in many other countries, EC providers could be the primary source of the care for the uninsured population: for lack of insurance, the uninsured would wait until their condition gets severe and necessitates emergency care, or they would go straight to emergency care even for conditions which do not warrant this type of expensive services, knowing that no medical establishment can turn patients away. Specifically for hospital emergency departments, because MOH payment per patient is rather small, they would have the incentives to admit the EC patient so that NHIF would cover the cost. On the other hand, the incentive for admission is reverse if the patient is uninsured[91]. One would need to obtain data from emergency departments, hospital admissions and the NHIF to ascertain if these hypotheses are valid or not.

3.4. Purchasing efficiency for medicines

3.4.1. Overview

81. This section addresses those aspects of Bulgaria's health financing system performance pertaining to medicines. Here the analysis is framed by an understanding of the key components of a well-functioning pharmaceutical policy framework – one arguably guided by an overarching national medicines policy, which in addition to setting out policy goals and objectives, and obligations and responsibilities of stakeholders, at a minimum provides for:

- a framework for ensuring access to drugs that are safe, effective and of adequate quality;
- well-managed decision processes for rational formulary selection, together with mechanisms for using purchasing power to ensure value for money;
- mechanisms for ensuring affordable, equitable access to necessary medicines; and
- strategies for supporting rational and cost-effective use.

82. As noted in Chapter 2, although small, the Bulgarian pharmaceutical market is showing strong growth.[92] Medicines comprise not only a disproportionate share of health care expenditure (38% of total health expenditure, compared with an EU average of around 25%),[93] the burden of out of pocket (OOP) costs is also excessive, possibly as high as 81% of total pharmaceutical expenditure. Of perhaps greatest concern is that rapid expenditure growth is taking place without obvious improvements in health outcomes, and at the expense of population equity.

[90] [English translation] Ministry of Health (date?) Concept for the Development of the Emergency Medical Care System in the Republic of Bulgaria 2014-2020.

[91] Although as mentioned earlier hospitals could have an incentive to pay contributions on behalf of the uninsured and receive payment from the NHIF.

[92] Ministry of Foreign Affairs, Denmark. *Pharmaceutical and Healthcare Sector, Bulgaria, 2014*. At http://bulgarien.um.dk/da/~/media/Bulgarien/Documents/Pharmaceutics%20and%20Healthcare_2014.pdf

[93] Rohova M, Dimova A et al. Balancing regulation and free markets: the Bulgarian pharmaceutical sector. *Eurohealth* 2013; Vol.19, No.1.

83. Lacking an integrated national medicines policy, the Bulgarian pharmaceutical sector is characterized by various, highly complex and at times, counterproductive policy levers. While the regulatory framework has been largely brought into line with current EU standards, existing mechanisms for listing and pricing medicines are not ensuring adequate value for money for the NHIF and are contributing to inefficiencies in the health sector. Current pharmaceutical policy settings appear focused on limiting NHIF outlays, and afford little financial protection to patients.

84. For multi-source, and in several cases, high volume medicines for chronic conditions many prices compare unfavorably with, for example, prices in the UK and New Zealand. At the same time reports of discounting in the supply chain suggest scope for lowering prices and clawing back some of the savings currently accruing to pharmacies. Adjusting approaches to listing, pricing and procurement of multi-source and therapeutic cluster medicines to create greater competition could generate substantial savings. Despite high levels of NCDs, particularly cardiovascular and chronic respiratory disease, out of pocket costs of key medicines are likely to be undermining access and adherence to treatment and contributing to underutilization of medicines important for delaying or preventing disease progression. Savings from improved procurement processes could be used to make chronic therapies available with lower and more predictable, patient contributions.

85. For single source, and in many cases, high cost medicines the practice of setting wholesale prices through external reference pricing provides no assurance that these represent reasonable value for money in Bulgaria. In many cases this mechanism is giving rise to prices as high, and at times even higher in absolute terms than in countries of much greater national wealth (a proxy for capacity to pay). Processes for listing medicines on the PDL are insufficiently influenced by considerations of cost effectiveness and there are no explicit links between circumstances of listing and approved treatment guidelines. There are as yet no officially approved pharmacotherapeutic guidelines despite at least three pieces of legislation with provisions stipulating the development, authorization and enforcement of pharmacotherapeutic guidelines in clinical practice in Bulgaria.[66] Utilization of several very high cost and potentially non cost-effective medicines is growing very rapidly.

86. The structure of patient contributions - set at different levels of co-insurance, rather than as fixed copayments - is regressive and creates uncertainty for patients. Moreover, many prescriptions are dispensed for products that are not at the reference or benchmark price, thus increasing out of pocket costs to patients, often by many times the co-insurance amount. This situation is exacerbated by widespread mistrust of the quality and safety of generics, prescribing by brand name and lack of substitution at pharmacy. The net effect is that patients pay substantially more than is necessary, and there are no safety nets or “stop-loss” provisions to protect individuals from catastrophic out of pocket costs.

3.4.2. Regulatory framework

87. The accession of Bulgaria to the European Union and participation in the nCADREAC Agreement has facilitated the establishment of EU standards of drug regulation. The implementation of the Medicinal Products in Human Medicine Act (MPHMA) 94 has been instrumental in this. There is evidence of inadequate or lack of enforcement of some aspects of medicines regulation, particularly with respect to the dispensing of prescription-only medicines to patients without prescriptions. While this presumably reduces costs to NHIF (while increasing out of pocket costs to patients) it may well be adding to the burden of medication-related adverse events and their associated costs, as well as to patterns of anti-microbial

[94] Medicinal Products in Human Medicine Act 2007. At http://en.bda.bg/images/stories/documents/ legal_acts /ZLPHM_en.pdf

resistance. There are also areas in which the regulatory framework seems overly prescriptive**.** For example, Ordinance No 28, which *inter alia* sets out the structure, terms and conditions of conduct of pharmacies, specifies the order in which they must dispense the prescriptions they receive. It is unclear why this would be necessary, nor how compliance could be monitored effectively in practice.

3.4.3. Drug selection and pricing

88. As described in Chapter 2, the primary price-setting mechanism is international (external) reference pricing, with prices drawn from ten primary and seven secondary EU member states. The Bulgarian ex-factory price set is at the level of the *lowest* price among these jurisdictions**.** There are a number of issues with this approach:

- The referenced prices are 'official' prices and may not capture confidential discounts and rebates negotiated by the referenced member states;
- The referenced prices may not reflect (and may not have been assessed for) reasonable value for money in the referenced member states;
- The referenced member states may offset high prices with narrow indications and strict controls on utilization (submitted pricing data do not take into account indications for use);
- All referenced member states have substantially higher per capita GDP than Bulgaria, so even where the price of a drug reflects reasonable value for money in the source country, this may not be the case in Bulgaria. At the very least the drug will be less affordable in Bulgaria.

89. To be considered for listing, a medicine with evidence of coverage in at least five of the 10 primary reference countries is subject to an assessment of clinical and economic data, with clinical factors receiving a maximum of 95 points, and pharmacoeconomic factors a maximum of 40 points. As noted previously, since only 60 points are required for inclusion in the PDL, a product may be approved for listing without demonstrating reasonable cost effectiveness**.** The process and criteria for the assessment of the economic data are not detailed in the Ordinance. Moreover staff of the Pricing Council indicated that they did not have sufficient expertise in pharmacoeconomic (PE) evaluation of medicines to undertake rigorous assessments of PE data submitted by applicants. The pharmacoeconomic reports are themselves often prepared locally by academics with limited expertise and knowledge in the field.

90. The assessment is made more difficult by virtue of the short timeframes specified in the MPHMA for the Pricing Council's decision-making (60 days for listing and pricing of new prescription medicines to be included in the PDL). While timely decision-making is desirable, considering the practices of other bodies undertaking similar assessments, this is unlikely to be sufficient for rigorous assessment of the clinical and economic performance of new medicines, particularly those likely to give rise to high budget impact, and for which new or updated treatment guidelines or protocols may be needed. The European Transparency Directive No 89/105/EEC3[95] currently allows member states up to 90 days for pricing decisions and up to 180 days for combined pricing and reimbursement decisions.

[95] EU Transparency Directive No 89/105/EEC3 specifies a series of procedural requirements to ensure transparency of pricing and reimbursement measures adopted by the Member States. These include specific time limits for pricing and reimbursement decisions (90 days for pricing, 90 days for reimbursement or 180 days for combined pricing and reimbursement decisions). The Directive also requires the competent national authorities to provide a statement of reasons based on objective and verifiable criteria for each of their decisions and to provide appropriate legal remedies to applicants. A 2012 proposal to shorten the time limits to 60/120 days has not yet been adopted, but would still allow twice the time currently allowed for the Pricing Council's decision-making.

91. For the evaluation of a new medicine for inclusion on the PDL and establishment of a price under Article 261 a of MPHMA, the Pricing Council receives a fee of only BGN 1,500.[96] This appears modest in relation to the effort required and the potential market available to a medicine listed on the PDL and subject to LHIF reimbursement.

92. While the ex-factory price of the first (and any subsequent) generic version of a medicine listed on the PDL may not exceed 80% of the ex-factory price of the originator's product in Bulgaria, generic prices are otherwise determined by external referencing. In other words, although a statutory price reduction is applied at the point of initial generic entry, there is no mechanism to mandate further price reductions within the off-patent market. For off-patent medicines more competitive pricing could create scope to increase NHIF reimbursement rates, particularly those for serious and chronic conditions for which long term adherence is important for effective treatment.

93. For each medicine a reference or benchmark price is set at the level of the lowest cost per Defined Daily Dose (DDD) for any brand or presentation of that medicine. This therapeutic reference pricing is also applied across different molecules within the same ATC subgroup where the products are considered to be of similar efficacy and safety for a particular indication (cluster reference pricing). The benchmark price within the cluster of drugs is then set at the level of the lowest cost/DDD for any of the drugs *within the cluster*.

94. There are therefore few incentives for competition in the off-patent market. As long as the ex-factory price of a multisource medicine is not higher than 80% of that of the originator, and the price is shown to be no higher than the lowest price for the same presentation in any of the specified reference countries, the price can substantially exceed the current benchmark price in terms of cost/ DDD, with any excess becoming an OOP cost to the patient. In many cases the actual price can be many times the benchmark price.

95. Section 264.2 of the MPHMA sets out notification requirements for suppliers of products whose prices set benchmarks, but it is not clear if suppliers are required to guarantee supply of a minimum proportion of the overall market. It is also not specified whether and how the unavailability of the benchmark-priced product triggers a review of the benchmark price. It is therefore unclear as to what, if any, mechanisms exist to ensure that benchmark-priced products are either available for supply or stocked by pharmacists and therefore accessible to patients.

96. Whether it is for multi-source products (ie containing the same INN in the same pharmaceutical form) or for medicines within a given cluster, the level of NHIF reimbursement is set as a *proportion of the benchmark,* not the actual price. As a result, the OOP payment for a drug subject to, for example, 75% reimbursement may be considerably higher than 25% of the actual product's cost, if the product is not a benchmark-priced product.

97. Moreover, the actual level of NHIF reimbursement is determined according to perceived clinical significance of the condition, but this appears to be applied inconsistently. In Annex I full (100%) reimbursement is said to be provided for products for chronic diseases causing 'severe disruptions in the quality or life or disablement and requiring prolonged treatment'. However the subsidies for oral agents for diabetes, for example, vary between 25% and 100%. This is illustrated in Chapter 2 **Table 11.** In a system where neither the physician nor pharmacist has an obligation or an incentive to minimize patients' OOP costs, there is no reason to imagine patients are empowered to determine which of the available drugs is genuinely of better value.

[96] See http://www.ncpr.bg/images/News/Tariff%20on%20the%20fees_exerpt_GS.pdf

98. Prices of selected drugs in Annexes I and II are shown in Table 21 and Table 23 , and comparisons with prices in the UK and New Zealand presented for the Top 25 (by NHIF expenditure) Annex I (mainly off-patent) medicines, and for the Top 25 (by value) Annex II (mainly high cost, patented oncology medicines) with prices in the UK alone. While for off-patent medicines better prices may be expected in the much larger and more competitive UK market, the same cannot be said for New Zealand, with a population of only 4.4 million.[97] For Annex II UK prices were selected because there medicines are subject to rigorous assessment of value for money by the National Institute for Health and Care Excellence (NICE).

Table 21: Price Comparisons for Selected Medicines in Annex I

INN	Indication	Dose	Pack size	Level of NHIF Reimb't	Bulgarian reference price (EURO)	NZ Price (EURO)	UK Price (EURO)	2013 NHIF Expenditure (EURO) (all forms)
adalimumab	rheumatoid arthritis	40mg	2	75%	1047	1141	889	7,704,996
amlodipine	hypertension	10mg	30	50%	1.65	0.79	1.30	807,731
clopidogrel	anticoagulant	75mg	30	75%	3.28	1.24	16.38	2,112,993
enalapril	hypertension, heart failure	10mg	30	25%	1.23	0.28	1.31	754,988
etanercept	rheumatoid arthritis	25mg	4	75%	508	602	451	8,657724
imiglucerase	Gaucher's disease	400U	1	100%	1,579	1,360	1,352	2,698,990
insulin glargine	diabetes	300IU	5	100%	53.26	59.92	52.36	3,938,996
insulin lispro	diabetes	300iU	10	100%	112	75.48	74.34	4,237,697
i**vabradine**	angina, heart failure	7.5mg	56	50%	57.95	N/A	50.68	2,765,659
latanoprost	glaucoma	125mcg	1	50%	3.92	1.26	2.25	1,684,087
lisinopril	hypertension	10mg	30	25%	2.57	0.86	1.31	926,484
metformin	diabetes	500mg	30	100%	0.47	0.23	3.60	3,192,340
metoprolol	hypertension	100mg	30	50%	2.29	1.53	1.43	1,073,497
olanzapine	antipsychotic	10mg	28	100%	2.56	1.62	1.83	3,214,028
salmeterol/ fluticasone	asthma	50/250mcg	60	100%	32.35	31.51	44.16	11,632,711
valsartan/ HCTZ	hypertension	160/12.5 mg	28	50%	4.12	N/A	3.61	4,590,649
vildagliptin/ metformin	diabetes	50/1000mg	60	50%	47.38	N/A	42.87	3,248,351

NOTES: Text in bold denotes medicines in NHIF 'Top 25' by reimbursement value in 2014. Total expenditure is for all presentations and dosage forms of the INN. Bulgarian prices shown as at 2 August 2014. Where multiple presentations listed, Bulgarian price shown is for product with lowest unit cost. All prices over 100 Euros are rounded.NZ prices from http://www.pharmac.health.nz/tools-resources/ pharmaceutical-

[97] The New Zealand Pharmaceutical Management Agency PHARMAC makes extensive use of sole supplier tendering for off patent products and the New Zealand market is highly competitive. The successful tenderer gets sole subsidized supply of the medicine for a fixed term thus creating maximum incentive to offer the best price.

schedule. UK prices from http://www.ppa.org.uk/edt/September_2014/mindex.htm. Exchange rates as of 2 August 2014 from www.oanda.com Some NZ and UK prices have been prorated to accommodate different pack sizes.

99. **Table 21** shows that there are a number of high unit cost, single source medicines for which Bulgarian prices may not reflect reasonable value for money. The prices of *adalimumab* and *etanercept*, for example, are 18% and 13% higher respectively, than in the UK. Further, in the UK their assessment by the National Institute for Health and Care Excellence (NICE) has resulted in limiting use within the National Health Service to the circumstances in which the drugs are considered cost effective. Bulgaria not only appear to be paying higher prices for these drugs, they are among those showing most rapid growth in expenditure (see **Table 22**) and the extent of any limitations on usage is unclear. Similarly, while the prices of insulin analogs such as *insulin glargine* are comparable with those in the UK (notwithstanding the very substantial difference in per capita GDP and therefore capacity to pay), use of these products in the UK is largely limited to patients with Type I diabetes, as they are not considered cost effective in most patients with Type II diabetes. Note that figures shown are for NHIF reimbursement, not total cost, and that 2014 figures are pro-rated from data for January-July 2014.

Table 22: Top 25 Medicines in Annex I, by Anticipated Value of NHIF Reimbursement in 2014*

INN	Indication	2012 Aggregate Reimbursement (BGN)	2013 Aggregate Reimbursement (BGN)	2014 *Anticipated* Reimbursement (BGN)	Change Y-O-Y 2012-13	Change Y-O-Y 2013-14	Change 2012-2014
budesonide/ formoterol	asthma/COPD	24,263,812	25,144,791	24,466,772	3.6%	-2.7%	0.8%
salmeterol/ fluticasone	asthma/COPD	22,831,674	22,757,030	23,455,888	-0.3%	3.1%	2.7%
adalimumab	rheumatoid arthritis	9,465,942	15,073,256	22,501,544	59.2%	49.3%	**137.7%**
etanercept	rheumatoid arthritis	8,613,710	13,903,970	16,937,074	61.4%	21.8%	**96.6%**
insulin human	diabetes	18,249,329	16,651,920	14,271,725	-8.8%	-14.3%	-21.8%
tiotropium	COPD	14,858,952	15,411,605	12,948,482	3.7%	-16.0%	-12.9%
coag factor VIII	hemophilia	9,479,592	12,740,752	12,168,645	34.4%	-4.5%	**28.4%**
insulin aspart	diabetes	10,728,807	11,323,993	12,113,798	5.5%	7.0%	12.9%
insulin lispro	diabetes	5,833,106	8,290,191	10,779,352	42.1%	30.0%	**84.8%**
interferon beta 1a	multiple sclerosis	9,111,680	9,965,819	10,405,744	9.4%	4.4%	14.2%
interferon beta 1b	multiple sclerosis	10,195,459	9,990,980	9,340,537	-2.0%	-6.5%	-8.4%
paliperidone	antipsychotic	4,333,022	7,706,792	9,132,993	77.9%	18.5%	**110.8%**
insulin glargine	diabetes	6,447,253	7,705,843	8,358,265	19.5%	8.5%	**29.6%**
valsartan/HCTZ	hypertertension	6,878,636	8,980,669	8,344,729	30.6%	-7.1%	**21.3%**
deferasirox	thalassemia	6,897,317	7,507,064	7,618,020	8.8%	1.5%	10.4%
vildagliptin/ metformin	diabetes	5,645,987	6,354,738	7,286,397	12.6%	14.7%	**29.1%**
aripiprazole	antipsychotic	7,065,294	6,479,568	6,492,006	-8.3%	0.2%	-8.1%
tafamadis	hereditary amyloidosis	N/A	1,625,885	6,308,127	-	**288.0%**	-
olanzapine	antipsychotic	9,023,707	6,287,592	6,291,927	-30.3%	0.1%	-30.3%
ticagrelor	acute coronary syndromes	597,799	4,194,705	6,277,811	601.7%	49.7%	**950.2%**
insulin detemir	diabetes	4,919,898	5,449,875	6,209,601	10.8%	13.9%	**26.2%**
golimumab	rheumatoid arthritis	1,775,888	4,807,398	6,177,455	170.7%	28.5%	**247.9%**
ivabradine	heart failure	4,516,473	5,410,449	5,922,462	19.8%	9.5%	**31.1%**
gliclazide	diabetes	5,783,239	5,873,388	5,912,065	1.6%	0.7%	2.2%
insulin aspart	diabetes	5,269,551	5,519,240	5,888,881	4.7%	6.7%	11.8%

* Data supplied by NHIF, Figures for 2014 have been pro-rated from data for January to July inclusive.

100. Similarly within Annex II there are a number of drugs for which prices are similar to, and in some cases even higher than in the UK (Table 23). Given that the UK has a PPP-adjusted per capita GDP more than twice that of Bulgaria, many of these drugs are clearly unlikely to be cost effective in Bulgaria. Many of these are also among those contributing most significantly to rapid expenditure growth (Table 24).

101. Moreover many of the medicines list in Table 23 and Table 24 are subject to very significant constraints in use in the UK, or not approved for use on the NHS. For example, NICE does not recommend *bevacizumab* for use in any solid tumours; *sunitinib* is only recommended for first line and *sorafenib* is not recommended for either first or second line treatment in renal cell carcinoma. Use of many of the other drugs listed here is very significantly restricted in the UK to ensure cost effective use.

102. A more extensive review of the existing PDL is likely to reveal further examples of drugs unlikely to be cost effective at current Bulgarian prices, especially where clinical treatment algorithms do not take

into account the cost effectiveness of different therapies. Absent very significant reductions in price, several drugs might require very tight restrictions in order to approach cost effective use, or may need to be considered for delisting altogether.

Table 23: Price comparisons for selected Top 12 medicines by value in Annex II*

INN	Brand	Dose	Pack size	Bulgarian price (EURO)	UK price (EURO)
bevacizumab	Avastin	400mg	1	1,234	1,166
trastuzumab	Herceptin	150mg	1	599	514
nilotinib	Tasigna	200mg	28	1,054	767
imatinib	Glivec	100mg	120	486	2,176
rituximab	Mabthera	500mg	1	1,293	1,102
pazopanib	Votrient	N/A	N/A	N/A	N/A
sunitinib	Sutent	25mg	30	2,486	2,121
bortezomib	Velcade	3.5mg	1	1,088	962
erlotinib	Tarceva	150mg	30	2,093	2,058
pemetrexed	Alimta	500mg	1	1,215	1,009
cetuximab	Erbitux	5mg/ml, 20ml	1	216	224
sorafenib	Nexavar	200mg	112	3785	3748

NOTES: Bulgarian prices as at 2 August 2014. Where multiple presentations listed, Bulgarian price shown is for product with lowest cost/DDD. All prices over 100 Euros are rounded.

UK prices from http://www.ppa.org.uk/edt/September_2014/mindex.htm. Exchange rates as of 2 August 2014 from www.oanda.com

Some UK prices have been pro-rated to accommodate different pack sizes.

Table 24: Top 25 medicines in Annex 2, by anticipated value of NHIF reimbursement in 2014*

INN	Indication	2012 NHIF Aggregate Expenditure (BGN)	2013 NHIF Aggregate Expenditure (BGN)	2014 NHIF *Anticipated* Expenditure (BGN)	Change Y-O-Y 2012-13	Change Y-O-Y 2013-14	Change 2012-2014
bevacizumab	multiple cancers	10,542,387	22,655,540	35,863,368	115%	58%	240%
trastuzumab	HER2+ breast cancer	19,213,305	25,737,247	30,850,905	34%	20%	61%
nilotinib	chronic myeloid leukemia	7,365,426	11,001,962	14,730,149	49%	34%	100%
imatinib	chronic myeloid leukemia, GI stromal tumor	12,522,185	12,713,847	12,280,117	2%	-3%	-2%
rituximab	non-Hodgkins lymphoma	6,573,673	8,902,784	11,165,340	35%	25%	70%
pazopanib	renal cell carcinoma, soft tissue sarcoma	2,234,502	5,636,499	8,734,802	152%	55%	291%
sunitinib	renal cell carcinoma, GI stromal tumor	4,451,781	6,158,572	7,801,703	38%	27%	75%
bortezomib	multiple myeloma	3,363,275	6,155,061	7,666,315	83%	25%	128%
erlotinib	non small cell lung cancer	2,622,949	5,114,310	7,641,139	95%	49%	191%
pemetrexed	non small cell lung cancer	3,752,392	4,997,414	6,933,525	33%	39%	85%
cetuximab	colorectal cancer	1,869,311	2,878,789	6,334,842	54%	120%	239%
sorafenib	renal cell carcinoma, liver cancer	2,997,950	4,679,733	6,181,226	56%	32%	106%
abiraterone	hormone refractory prostate cancer	-	-	5,960,008			
panitumumab	colorectal cancer	2,347,526	3,834,203	5,886,700	63%	54%	151%
pegfilgrastim	granulocyte colony stimulating factor	2,121,336	3,639,723	5,843,921	72%	61%	175%
everolimus	immunosuppression post organ transplant	1,728,260	2,011,974	5,726,439	16%	185%	231%
denosumab	osteoporosis, bone metastases	-	723,940	4,636,412		540%	
romiplostim	thrombocytopenia	1,394,614	2,204,425	4,149,283	58%	88%	198%
clofarabine	acute lymphoblastic leukaemia	933,453	1,609,962	3,968,177	72%	146%	325%
cabazitaxel	hormone refractory prostate cancer	-	-	3,894,716			
lapatinib	breast cancer	1,442,569	2,323,999	3,584,892	61%	54%	149%
zoledronic acid	osteoporosis, bone metastases	9,575,436	9,025,084	3,441,422	-6%	-62%	-64%
dasatinib	chronic myeloid leukemia	2,409,378	2,581,825	3,193,215	7%	24%	33%
gefitinib	non small cell lung cancer	654,512	2,069,502	2,649,458	216%	28%	305%
octreotide	growth hormone producing tumors	1,184,774	1,817,878	2,601,109	53%	43%	120%

Table 12 *in Chapter 2 illustrated the growth in NHIF expenditure in different therapeutic areas. This shows the Top 25 medicines by value of NHIF expenditure, as well as growth in outlays over 2012-2014.*

3.4.4. Distribution and supply chain

103. As noted in Chapter 2, wholesale and retail mark-ups are proportional to drug costs, and thereby create incentives for the distribution and dispensing of more expensive medicines. This is perhaps understandable given that dispensing fees of 2BGN are payable only for prescriptions consisting entirely of products 100% reimbursed by the NHIF – for which no retail markup applies. Options for reducing incentives for dispensing more expensive medicines include flat margins, higher dispensing fees, and encouraging substitution (currently not permitted) of more expensive brands for benchmark priced products.

104. As discussed above, therapeutic reference pricing for multi-source medicines tends to discourage rather than promote competition, and thus maintain rather than reduce prices. As a result, where competition does occur it tends to take the form of discounting within the supply chain, with savings accruing to pharmacies rather than to the payer. In addition, anecdotal evidence suggests that the extent of vertical and horizontal integration in the pharmacy sector is also reducing scope for competition in this market.

3.4.5. Prescribers and patients

105. Pharmaceutical industry promotion to prescribers encourages prescribing of newer, more expensive products and this is evident in the patterns of expenditure. Expenditure growth is aided by the absence of mandatory prescribing by international non-proprietary name, and by the reported widespread mistrust of generic medicines. Pharmacists are not legally permitted to dispense anything other than brand of the product specified in the prescription, though in practice there is anecdotal evidence that substitution does occur in favour of higher-priced, higher-margin products, and these are also favored where dispensing occurs without a prescription. Where a physician prescribes a medicine with a price higher than the reference or benchmark price, the patient must pay the difference out of pocket, on top of the co-insurance amount determined by the level of NHIF subsidy.

106. Pharmacotherapeutic guidelines have a critical role in the implementation of rational drug therapy. Although three pieces of legislation – *HL, MPHMA and Ordinance on the Terms, Rules and Procedure for Regulation and Registration of Prices for Medicinal Products* – govern the terms and conditions for the development of pharmacotherapeutic guidelines, to date none have written, approved or published. This is likely to be contributing to the rapid growth in the utilization of many high cost drugs.

107. In addition to guidelines that direct evidence based, cost-effective and rational drug therapy, incentives for more rational use of medicines include promoting the safety and acceptability of generics to consumers, educating prescribers about the cost implications of their prescribing choices, encouraging or even mandating prescribing by INN; and providing incentives for pharmacists to stock and supply benchmark-priced products.

3.5. Development of an actuarial assessment capacity

108. In principle, the NHIF is typical of the social/mandatory health insurance approach to health financing prevalent in most OECD and Former Soviet Union countries, and increasingly in emerging market economies. Key aspects of this approach are governance by an independent or quasi-independent public entity and a reliance on earmarked payroll contributions, general revenue contributions for disadvantaged and other priority groups, and a link between contributions and a defined set of rights/benefits for the insured population. In the context of an insurance model, public or private, whether it covers health and/or other risks, a solid understanding of the relationship between revenues and expenditures and their respective drives is generally considered important to guide policy-making or management. An actuarial model is the tool used for that purpose.

109. More broadly, projecting future health care costs is an important input into health policy making in all countries. Understanding the underlying health cost drivers and their likely impacts provide policy makers with basic information upon which to base cost-containment policies and ascertain their impacts. Virtually all advanced and many emerging market countries use health care cost projection models in their health policy-making. [98]

110. Models can forecast spending at multiple levels in terms of the unit of observation – individual consumers, families, communities, or a country as a whole and the types and levels of aggregation of health expenditure and revenue components – public spending, private spending, OOP, social insurance contributions, etc. Models are often distinguished based on the unit of observation they use as a reference, the level of aggregation in health spending they project and their horizon. The OECD and Duke Studies cited above identify three broad categories of health expenditure forecasting models: "models focusing on individuals as the unit of analysis for the projection are referred to as micro models and …… use microsimulation techniques. Those stratifying sections of health expenditure into groups, or stratifying individuals into groups, or combinations of these two dimensions, are identified here as component-based models. Component based models include cohort and actuarial models (See Box 3 below), which often base forecasts by age group and/or other socioeconomic characteristics. Finally, macro-level models focus on total health expenditure as the unit of analysis. Within this group, some macro-level models (called computable general equilibrium models) project future health expenditure trends within the context of the whole economy. [99]"

111. Component based models are the most widely utilized and often analyze expenditures by financing agents including consumers and often use different techniques and underlying data to analyze different agents – e.g., providers vs consumers. They often develop group-specific analyses of the underlying cost drivers. Figure 56 provides a general schematic of such cost drivers.

[98] See for example R. Astolofi et al., *A Comparative Analysis of Health Forecasting Models,* OECD Health Working Papers Number No. 59, Paris, 2012; M. Mohanan. *Heath Financing Projection Tools,* Duke University, 2009; and, B. Przywara, *Projecting Future European Health Expenditure at European Level: Drivers, Methodology and Main Results,* European Commission, Economic Papers 417, June 2010.
[99] OECD, Ibid., p.18.

Figure 56: Underlying Determinants of Health Expenditure Increase

	Demographic factors	Health factors	Economic and social factors	Public policy factors
Demand side factors	• Size and structure of the population	• Health status of the population, in particular of elderly cohorts • Death-related costs	• National/ individual income • Income elasticity of demand for health care • Social determinants of health (environment, living conditions) and health-related behaviour • Public expectations and real convergence in living standards	• Health promotion and disease prevention policy
Supply side factors			• Development of new technologies and medical progress • Unit costs in health care sector relative to the other sectors of economy • Resource inputs, both human and capital	• Contribution of public and private budgets to the financing of health care • Insurance schemes • Remuneration schemes in health care sector • Regulation and/or liberalisation of the market for health care services and pharmaceuticals

112. Actuarial analyses help assess whether 'projected premiums in the aggregate, including expected reinsurance cash flows, governmental risk adjustment cash flows, and investment income, are adequate to provide for all expected costs, including health benefits, health benefit settlement expenses, marketing and administrative expenses, and the cost of capital'[100] (see also Box 3) . No such model exists for the National Health Insurance Fund, or in any other institution in Bulgaria, despite the fact that it collects contributions with which it is supposed to consistently and over time provide access to a benefits package for the vast majority of the population. There is little analysis or understanding of underlying expenditure trends/pressures; their causal factors and how they will likely manifest themselves in the future, which is critical information for designing reform policies; and, assuring the long-term solvency and financial sustainability of the NHIF including its overall fiscal policy management. Without such information the NHIF (and the Government more generally) is hampered in its capacity to actively and effectively manage public funds for some 40 percent of all health spending.

[100] American Academy of Actuaries, *Actuarial Soundness*, American Academy of Actuaries, Washington, D.C., May 2012, p.2.

Box 3: Actuarial analysis

Actuarial analysis is a form of statistical analysis, typically conducted using health-related financial cost data, in the context of calculating insurance premium rates or otherwise determining expenditure needs: actuarial analysis entails estimation of average expenditures of a risk pool so that financing needs can be estimated to ensure that revenues balance expected outlays. Actuarial models often exploit historical claims and utilization data – combined with adjustments made to account for population and inflationary trends -- to project expected expenditures. Financial sustainability, or "actuarial soundness", implies that expected expenditures (including administrative costs and any reserve requirements) for a risk pool be less than or equal to expected revenues. Traditional costing methods, e.g., top-down costing (which estimates and allocates aggregate outlays across activities) and bottom-up costing (which costs granular service delivery activities and aggregates them up to estimate outlays), generally focus on a production approach to estimating resource outlays that may be needed to deliver health services, taking the consumption of health services as largely a given. Actuarial analysis, on the other hand, takes the production of health services as largely a given, focusing instead on estimating costs from a consumption approach: probabilistically determining utilization and associated expected expenditures that would be needed to finance health care from a pool of financial resources.

Source: Tandon, A (2014), "Managing Money: Financing the Bottom-Up Expansion of Universal Health Coverage," Draft Chapter for Forthcoming Book on the Universal Coverage Program (UNICO), World Bank, Washington, D.C. Based on Cichon, M. et al. 1999. Modelling in Health Care Finance: A Compendium of Quantitative Techniques for Health Care Financing, Geneva: International Labour Office; Wang, H. et al. 2012. Health Insurance Handbook: How to Make it Work? Washington, D.C.: World Bank

113. Since understanding the actuarial soundness of the NHIF is a necessary condition for both the health system diagnostic as well as the development of reforms, an actuarial model for the NHIF is being developed as part of this study. The model is currently being refined as better underlying baseline data is obtained and consensus with government health and fiscal experts on the explicit projection parameters and assumptions is sought.

114. The development of the actuarial model is proving challenging for a number of reasons mostly relating to information access. In many cases, the needed underlying information is scattered among multiple agencies, sometimes multiple data sources are inconsistent (e.g., on the number of uninsured), and in other cases data are simply not available – or could not be accessed despite various requests. NHIF itself has to rely on external sources to determine coverage, and has little information about the eligibility basis of those it covers and those uninsured who are required by law to enroll.

115. The actuarial model will analyze the trends of the underlying variables which determine the growth of the cost and income of the insurance scheme as well as its contribution to the government's fiscal balance. The costs and revenues of the NHIF are largely determined by the size and composition of the covered population, the benefit package, the age and gender costs structure resulting from the provision the existing package, the provider payment mechanisms used, employment and labor force trends, and government fiscal and social policy. This effort thus entails taking in to account projections of macroeconomic indicators (income, employment, prices, GDP and so on), labor projections, demographic developments, etc.

116. The model will be based on detailed information needed to ascertain revenues and expenditures. The following data are needed to ascertain NHIF revenues:

- ✓ Number of insured persons
- ✓ Employees on a labor contract
- ✓ Self – insured people
- ✓ Government transfers on behalf of statutorily covered groups

- Children and students
- Unemployed people
- Pensioners
- Prisoners
- Other groups the Government pays the premiums for

✓ Macroeconomic indicators

✓ Projections of the number of insured people in the different groups and their health care contributions 2014 – 2020

117. Expenditure/supply side projections also require substantial amounts of data on:

✓ Supply side of the system: numbers and types of health care providers
✓ Provider payments
✓ Expenditure structure from the National Health Accounts and age and gender expenditure profile
✓ Projection of the expenditures
- Ageing of the population
- Hospital care
- Primary health care services (out – patient care by GP's)
- Drugs for home treatment
- Dental care
- Specialized care
- Medical laboratories
- Medical implants
- Drugs for oncology
- Other costs
- Costs of administration

118. In practice, the model will work as follows: (1) the number of people in the different eligibility groups will be analyzed and after that projected forward to 2020; (2) the supply side of the system will be analyzed in terms of spending by all payors (central government, municipalities, NHIF, and private payors); and (3) projections will be made of spending for the different types of health care taking into account the number of insured people, demographic developments, the trends in the costs and the macroeconomic forecast of the International Monetary Fund (October 2014). The model will be calibrated by projecting backwards in order to find the underlying factors influencing the trend so as not to miss the critical volume and price effects.

119. Preliminary analyses of the underlying trend information being inputted to the model yield some interesting results:

✓ The total amount of the transfer made by the state for the categories it is supposed to contribute on behalf of is given in the NHIF budget. However, no information is publicly available about the assumptions underlying that amount, in other words the projected number of people in each category. Similarly, no information is readily available on contributions made by the state for the people it employs. Some stakeholders have expressed doubt that the amounts transferred to the NHIF correspond to the payments stated in the law. We find no evidence that this is the case.
✓ The NHIF cannot independently ascertain who they cover.
✓ People on labor contracts appear to be largely enrolled.

- ✓ The largest gap between the number of people who should be insured and appear to effectively be covered is among individuals who should self-insure. The people who actually self-insure are probably rather well-off and those who remain uninsured are more likely to be poor or near-poor.
- ✓ The costs of ambulatory health care are not growing very much, as could be expected for the reasons mentioned above.
- ✓ The cost of "Drugs for home treatment" and "Hospital care" are growing fast and do not appear to be well controlled. This confirms some of the results expected from the analysis of the possible impact of existing provider and payment methods.

120. It is critical to underline that ultimately, the Government has the capacity to keep any projected deficits in check by imposing strict caps, and/or reducing or rationing benefits, implicitly or explicitly. In other words, projected deficits may never materialize. The model will simply highlight the underlying cost drivers which are at work and remain under-managed. It is probably possible to maintain a strict fiscal rule and cap public expenditure, but this will most likely lead to further shifts towards private out-of-pocket spending. The earlier section of this chapter highlights the poverty impact of this position.

121. To summarize, actuarial studies are an essential tool for both understanding and managing underlying NHIF fiscal and service trends, and are a necessary concomitant for effective decision-making and PFM. Developing, testing, and institutionalizing the actuarial model as an input to health policy decision-making is an important concomitant for future NHIF and overall health policy management and choices.

Chapter 4. Constraints to improving health financing performance

1. This chapter reviews other complementary structural elements that impact the performance of the NHIF and Bulgaria's overall health financing system, which must be taken into account as reforms are envisaged in the sector. The first section puts health financing in the current and future macro-fiscal context of Bulgaria to assess the extent to which it constraints and may drive the reform agenda. The main conclusion is that efficiency gains are likely to be the principal available policy lever to create the necessary fiscal space to accommodate increasing public health spending pressures. Getting more value for money requires an increasingly sophisticated management of risks, of the value for money and quality delivered by each actor of the system. This requires intelligence gathering monitoring and analyses at all levels of the system. The second section assessed the current state of preparedness of the health insurance information system to deal with these issues. The last section wraps up the analysis with a summary assessment of the NHIFs current capacity to tackle the agenda given the political, institutional, operational and economic realities it operates under.

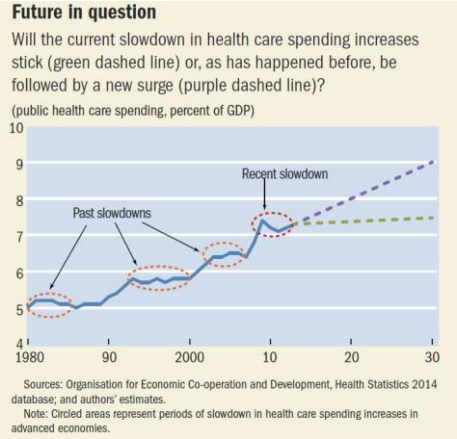
4.1. Fiscal space and fiscal policies for health

2. Bulgaria's health care reforms must be undertaken within the context of Bulgaria's current and likely future macroeconomic and in particular fiscal contexts. Bulgaria like other advanced and emerging market countries will continue to face strong pressures to increase health spending. While some of these pressures may be due to inherent inefficiencies in the current system, many are exogenous to the health system and include, as discussed in the first chapter: population ageing, income growth, technological advances, the Baumol effect, and health policies and institutions. How Bulgaria copes with these pressures depends on both the country's overall fiscal factors as well as decisions by the government in terms of prioritizing health.

3. A recent IMF study highlights the persistence of these cost pressures over the long-term both in advanced and emerging market countries. Figure 57 below shows the resurgence and continuity of these pressures after every major economic downturn and the likely persistence of these trends into the future. In order to meet their fiscal targets and absorb the projected growth in public expenditure over the 2014 to 2020 period countries will need on average to increase their primary balance (government revenues minus expenditures less interest payments) by 2.25 percentage points of GDP. As discussed below, the IMF estimates that for Bulgaria, public health spending will need to increase by 3.2 percentage points of GDP by 2050 to accommodate its demographic and excess cost growth trends[101]. In constrained fiscal environments, this puts strong pressures on governments in terms of raising revenues, controlling spending, and prioritizing among sectors.

[101] Benedict Clements, Sanjeev Gupta, and Baoping Shang, 'Bill of Health', Finance and Development, IMF, December 2014, p. 25 and IMF, *Bulgaria Selected Issues Paper*, IMF, January 2014, p. 20.

Figure 57: Public spending as a percent of GDP over time



Source: Benedict Clements et al (2014), op.cit.

4. This section analyzes Bulgaria's health financing in the context of its current and likely future macroeconomic and fiscal situations. First, the concept of 'fiscal space' is discussed. Second, Bulgaria's options for increasing fiscal space for health are assessed in the context of its medium and longer term economic prospects. Finally, the issue of the pubic revenue mix for health is briefly discussed.

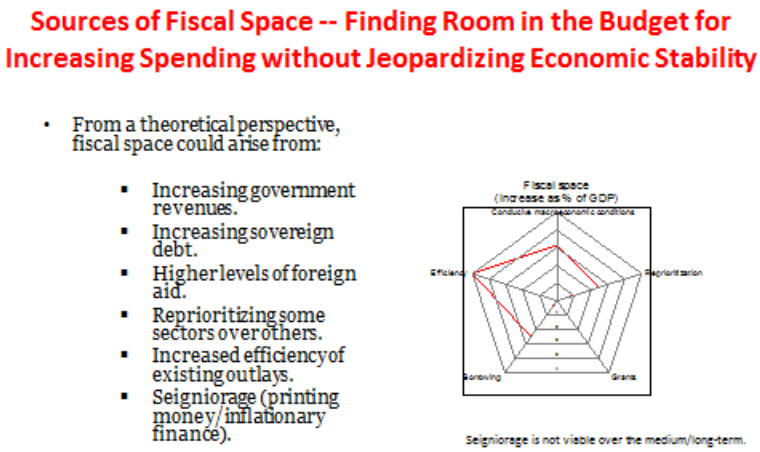
4.1.1. Fiscal space: concepts

5. The analytical framework for analyzing the macro fiscal situation is embodied in the concept of 'Fiscal Space'. Fiscal space is defined as 'the availability of budgetary room that allows a government to provide resources for a desired purpose without any prejudice to the sustainability of a government's financial position'[102]. Fiscal sustainability is an explicit aspect of fiscal space and refers to the capacity of a government, at least in the future, to finance its desired expenditure programs, to service any debt obligations (including those that may arise if the created fiscal space arises from government borrowing), and to ensure its solvency (i.e., a country's ability to meet the present value of its external obligations).

6. Fiscal space is a general concept that applies to the entire economy, not just the health sector. However, health policy makers often focus on applying the concept specifically to health. Figure 58 below shows the classic Fiscal Space diamond and the five basic sources of fiscal space.

[102] Heller 2006. "The Prospects of creating 'Fiscal Space' for the health sector," Health Policy and Planning, Vol. 21, No.2 (January), pp. 75-79, Tandon, A., and C. Cashin. 2010. "Assessing Public Expenditure on Health from a Fiscal Space Perspective." World Bank, Washington, DC.

Figure 58: Sources of fiscal space



Source Heller 2006 and Tandon and Cashin 2010

7. There are five potential sources of fiscal space. The first one is an increase of government revenues. Conducive economic conditions such as economic growth can result in higher absolute revenue levels and possibly larger revenue shares (revenues/taxes relative to GDP). Countries can create fiscal space in the short to medium term by borrowing, but borrowed funds need to be repaid. Poorer countries can rely on foreign aid, but aid is often unpredictable, tied to specific programs, and not sustainable in the long-term. Fiscal space for a particular sector can also be created by reprioritization such as shifting spending from defense to health. Efficiency gains in government programs create additional fiscal space. In fact, recent IMF studies argue that in advanced economies, efficiency gains are likely to be the principal available policy lever to create the necessary fiscal space to accommodate increasing public health spending pressures[103]. Governments can also create fiscal space by printing money, but in the long term this is not sustainable as it depreciates the value of the currency.

4.1.2. Perspectives for increasing fiscal space in Bulgaria

8. As one of the poorest countries in the EU and one without important natural resources, Bulgaria was seriously impacted by the global economic crisis and continues to face a challenging macroeconomic environment. While Bulgaria gets high marks for macroeconomic management in terms of controlling its expenditures and debt, limited economic growth prospects coupled with its already high revenue and spending levels, limit future fiscal space in the medium term.

9. Bulgaria will be challenged to fund the NHIF and public health spending increases projected above given its limited future fiscal space. Underlying demographic and excess health care growth trends driving

[103] See Francesco Grigoli and Javier Kapsoli, *Waste Not, Want Not: The Efficiency of Health Expenditure in Emerging and Developing Economies*, IMF, 2013, and David Coady, Maura Francese, and Baoping Shang, 'The Efficiency Imperative', *Finance and Development,* IMF, December 2014, pp. 30-32.

expenditures upward coupled with labor market trends stagnating revenues could result in increasingly large NHIF deficits and public health shares of the budget.

10. The IMF projects that by 2030 public health spending pressures will add 1.3 percentage points in public health spending to GDP and that will increase to 3.2 percentage points of GDP by 2050 (an amount equivalent to 45 percent of Bulgaria's current GDP).[104] Thus, even if some additional revenues became available, revenue enhancements will not solve the cost escalation problems due to the NHIFs inefficiencies and demographic changes. Moreover, is the government willing to use its very limited additional revenues for health versus other priorities? Relatedly is the government willing to further prioritize health in the budget by reducing spending in other sectors? Can the government find efficiency gains in other sectors and would it be willing to use those funds for health?

11. The following shows why Bulgaria is somewhat limited in the use of some of the instruments theoretically available to increase fiscal space. As an EU member state Bulgaria is not a candidate for development assistance. It receives EU funding but health is not a major priority for these funds. Given its challenging macroeconomic environment and prudent fiscal management discussed below, neither printing money nor borrowing are likely fiscal space options. Thus creating fiscal space for health or indeed any other government programs will largely depend on the country's ability to raise additional revenues, efficiency gains in health and other sectors, and/or prioritization of health in the budget.

12. Growth is forecasted to be weak. Table 25 shows Bulgaria's most recent projected growth by the EU and the Ministry of Finance (both are lower than earlier IMF projections). In the absence of changes in revenue effort, this would result in a slow growth in government revenues for all purposes. In the face of the Government's target to reduce the deficit to 2 percent of GDP in 2017, additional fiscal space from conducive macroeconomic conditions and increased revenues will be very limited. Strict adherence to maintaining the public debt at reasonable levels also likely precludes additional borrowing. Thus creating fiscal space for health or indeed any other government programs will largely depend on the country's ability to achieve efficiency gains in health and other sectors and/or reprioritization of health in the budget.

Table 25: Macro-economic projections

	2014	2015	2016	2017
Real Growth (MoF)	1.5	0.8	1.5	2.3
Real Growth (EU)	1.2	0.6	1.0	
Cash Deficit (MoF)	4.0	3.0	2.5	2.0
Accrual Deficit (Eu)	3.6	3.7	3.8	

EU Nov 2014[105], Ministry of Finance

[104] IMF, *Bulgaria Selected Issues Paper*, IMF, January 2014, p. 20 and B. Clements et al. *Macro-Fiscal Implications of Health Care Reform in Advanced and Emerging Economies*, IMF, 2010, p. 57.
[105] http://ec.europa.eu/economy_finance/eu/forecasts/2014_autumn/bg_en.pdf

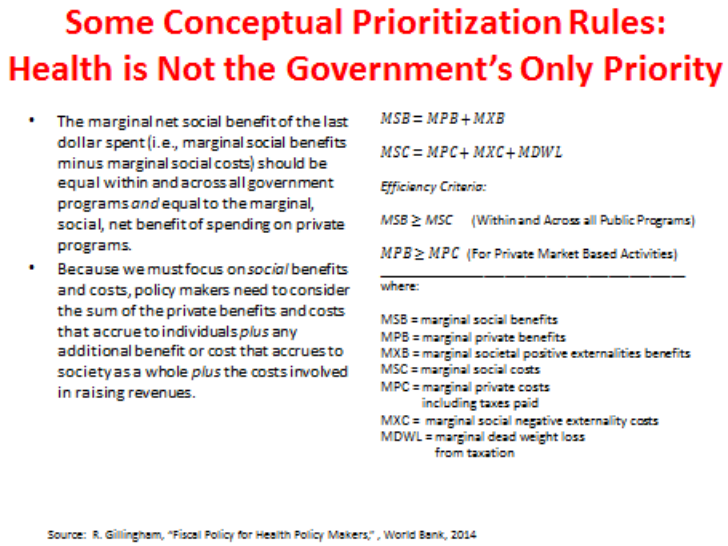
13. Efficiency gains in the health sector could lead to significantly better outcomes and could offset the need to increase expenditures substantially.[106] Measures to reduce costs and improve efficiency revolve around the implementation of reforms in service delivery and include the implementation of a technically driven hospital rationalization plan, strengthening alternatives to hospital based care, and addressing human resources constraints by adjusting the financial and other factors needed to retain trained health workers in Bulgaria (IMF, 2014, World Bank 2013).[107]

14. The last option is to increase the share of public expenditure going to health. Public spending prioritization is relatively simple conceptually but extremely difficult from practical measurement and political perspectives. From a real world perspective a recent study by Tandon et al. suggests that factors such as democratization, lower levels of corruption, ethnolinguistic homogeneity, and more women in public office are correlated with higher health shares of public spending, but the results are not definitive.[108]

15. **Figure 59** summarizes the well-known public finance criteria for prioritizing government spending within and across sectors. In short, the marginal net social benefits (e.g., marginal social benefits minus marginal social costs) within each sector and across all sectors should be equal and equal to the marginal net benefit of spending on private programs. In practice given the numerous non-pecuniary benefits in health and other social services and the difficulties in measuring externalities and deadweight losses from taxation, prioritization decisions are not simple analytical exercises. Nevertheless, health policy makers need to reflect these criteria in their rationales for expansions to Finance Ministries as populist slogans such as 'health is a right' are not a sufficient argument in a budget constrained environment with multiple and increasing social needs.

[106] Grigori and Kapsoli (2013) conducted a cross-country stochastic frontier analysis, controlling for educational attainment, lifestyle behaviors (such as alcohol consumption, environmental), environmental factors (access to sanitation facilities and to clean water), and communicable disease indicators. The results suggest that at the current expenditure levels Bulgaria could increase life expectancy by 4 years simply by addressing inefficiencies.
[107] Lakwijk, F., Garcia, B., and A. Weber (2014). Bulgaria: Selected Issues Paper. IMF Country Report 14/24. Washington, D.C.: IMF. < http://www.imf.org/external/pubs/ft/scr/2014/cr1424.pdf>
[108] Ajay Tandon, , Lisa Fleisher, Rong Li, and Wei Aun Yap, *Reprioritizing Government Spending on Health: Pushing an Elephant Up the Stairs?, World bank, 2014.*

Figure 59: Conceptual prioritization rules of public spending



16. In reality, policy decisions are seldom explicitly assessed or debated in terms of the public expenditure trade-offs they generate. For instance, the recent reversal of the 2011/2012 pension reforms can be expected to further limit the fiscal space for health. Beginning July 2014, automatic indexation for pensions was implemented using the 'golden Swiss rule', which ties pension increases to the average growth of insurable income and CPI inflation. Previously, pension increases were only tied to CPI inflation. In addition, Bulgaria has also halted the gradual increase in the retirement age policy, which would have raised the retirement age to 65 years for men by 2017 and 63 years for women by 2020[109]. These changes will have significant implications on the pension deficit and could crowd out other spending. IMF projections indicate that the pension deficit will increase to 6 percent of GDP by 2040 instead of the previously estimated 4 percent of GDP.

17. In summary, Bulgaria's health financing reforms are being undertaken in a challenging fiscal environment within which there are unlikely to be significant amounts of additional fiscal space for health in the short, medium, and long terms. Bulgaria will need to rely heavily on efficiency gains and possibly reprioritization to obtain additional fiscal space for health. As revenue effort is already high and needed to cover current public expenditures and debt levels, significant increases of revenue effort, save through improvements in revenue administration, are not envisaged. Nevertheless, the following section highlights Bulgaria's current revenue structure as the composition of revenues has important additional equity, efficiency, and sustainability implications for the economy.

[109] IMF (2014), *Bulgaria Selected Issues Paper*, January

4.1.3. Brief discussion on public revenue mix

18. Another important aspect of the tax policy which matters for - or needs to be factored in health financing reforms - is the way in which revenues are raised by the Government. Different tax and non-tax instruments have different efficiency, equity, and sustainability effects[110]. These will depend on the tax base being broad or narrow, the rate structure, floors and ceilings, exemptions, exclusions, and deductions, and the commodities, entities, and factors of production subject to tax. Governments aim to find a mix which minimizes distortions of the economic behavior of consumers and producers, while still allocating the tax burden equitably. Public revenues for health are often raised through specific earmarked taxes and, as such, a discussion of their impact and sustainability is warranted.

19. A recent IMF assessment of the government fiscal policy deemed it "growth friendly on the revenue side" [111]: direct taxes rates are low and most revenues are collected through indirect taxes. Indeed, Bulgaria is one of the two countries in the European Union which relies heavily on indirect taxes[112], which represent more than 55 percent of government revenue in 2012.[113] VAT[114] accounted for 61 percent of indirect tax revenue, while excise duties represented 33.3 percent. Social contributions represented 25.8 percent of total taxation in 2012, also among the lowest in the EU[115]**.** Revenue from labor taxation remains low, representing 9.2 percent of GDP. This is the lowest share in the EU and is almost 11 percentage points below the EU average. The recent ageing report by the World Bank, which projects revenue levels and composition out to 2050, suggests that the composition and levels are likely to be similar to the current situation (Figure 60).

[110] For an up to date assessment of the incidence and efficiency of various taxes, see Robert Gillingham, *Fiscal Policy for Health Policy Makers*, World Bank, 2014.

[111] An exception is a recent IMF study on fiscal multipliers in Bulgaria. See Dirk Weir and Anke Weber, *Fiscal Multipliers in Bulgaria: Low But Still Relevant*, IMF, 2013.

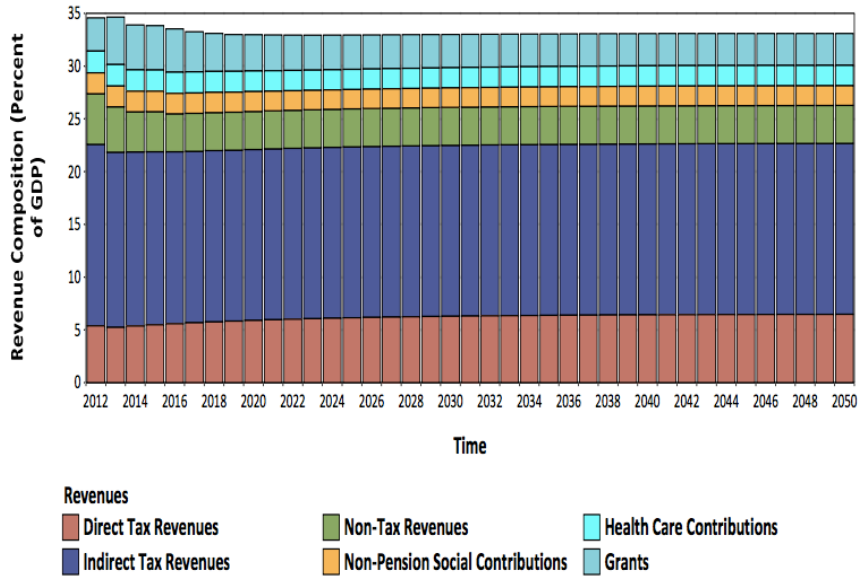
[112] Eurostat, (2014) Taxation trends in the European Union Data for the EU Member States, Iceland and Norway

[113] The other country is Croatia, where indirect taxes also represent more than 50 percent of government revenue.

[114] The standard VAT rate is 20 percent, with a reduced rate of 9 percent applicable to hotel accommodation only ().

[115] Social insurance funds include contributions for pensions (17.8 percent), general sickness and maternity (3.5 percent), health (8 percent), and unemployment (1 percent). The contributions are shared between the employer and employee. For pension contributions, the employer is responsible for 9.9 percent and the employee for 7.9 percent. The other social contributions are shared between the employer and employee using a ratio of 60:40. The monthly ceiling income is set at BGN 2,400 (EUR 1,227).

Figure 60: Revenue Composition (Percent of GDP) in Bulgaria, 2012-2050



Source: Onder et al. (2014)

20. At the same time, it is important to note that no study has been conducted of the equity of the tax system in Bulgaria. The reliance on indirect taxation, the existence of minima and caps for some social contributions suggest however that taxation could be relatively heavier for lower income levels.

21. Overall still, it would appear that both fiscal and health sector-specific financing reforms have at their disposal the full array of tax instruments that countries' employ to raise revenues for their systems. Further, this does not change the fact that does not appear to be too much potential for increasing overall revenue effort as discussed above.

4.2. Preparedness of the Health Insurance Information System (HIIS) and its environment

22. The second systemic issue reviewed here pertains to the information system environment in which health financing reforms will have to take place in Bulgaria. Chapter 2 introduced the four components needed for a Health Insurance Information System (HIIS) to support both the current NHIF duties, and also to look forward to future developments if/when/as the Bulgarian finance system is modified to accommodate new provider payment methods, new pay-for-performance ("P4P") initiatives, new quality management methods and more comprehensive fund management.

4.2.1. Standards-setting and the Health Data Dictionary

23. The previous chapter pointed out that, because of a relatively small number of dominant vendors in the Bulgarian HIIS market, a set of ad hoc information exchange standards has emerged over recent years. They seem to have been sufficient to provide the basis for the current level of HIIS development. Overall both NHIF and the providers are reasonably satisfied with the level and quality of the automation of the health information exchange processes thus far. However, this ad hoc approach will one day soon reach its limitations and a more concerted top-down effort will be needed to specify a more complete "common

language" to support more advanced processing. Linking providers and payers is a delicate art, since the goal is to provide wide access to information needed by both sides while preserving the arms-length business relationship required to facilitate a true buyer-seller competitive environment. The following discusses specific issues limiting the performance of the HIIS in this area.

24. Bulgaria's current Health Data Dictionary should contain specifications for the needed coding systems (including for diagnoses, service procedures, medications). It should enumerate the main resources of the health sector (including a Doctor (Provider) table, Allied Health-workers table, Facilities table, Medical Equipment table, Medical Supplies table, etc.) These tables should be maintained by one agency and made available to all stakeholders. Changes to the tables should immediately and easily be visible to all stakeholders.

25. Besides coding standards and registry tables, as outlined in the preceding paragraph, other standards relating to infrastructure should also be spelled out [116]. Also, standards relating to privacy and confidentiality need to be spelled out, and appropriate standards from the EU incorporated into the Dictionary. This includes two main categories of standards – those which relate to the protection of the rights of individual patients to privacy and well as to standards aimed at securing health data against threats to the dataset as a whole. These later threats could originate from cybersecurity breaches, from bad actors from within or outside the health sector, or from threats caused by natural disasters.

The complications caused by the use of the CCP coding method

26. Bulgaria's unique use of the CCP encoding method for its hospital-based cases provides some specific challenges and therefore warrants a closer look. The first one is that it precludes, or at the least greatly reduces the opportunity to automate the claims adjudication process. To adjudicate claims [117] "by computer" one wants to create rules which even computers can understand and consistently apply. This minimizes "human touches" on claims which add considerably to the cost of processing of each claim and increase the risk of inconsistency and/or manipulation. It is reasonable to expect that the computer should be able, with little or no human intervention, to adjudicate almost all claims (80% of total claims, representing the less complex cases), and thus free up the expert human staff at NHIF to adjudicate the remaining claims (20% perhaps) which require human insight and thorough scrutiny. Using this application of the "80-20" rule one uses the computer to do what it does best – slogging through the river of simple claims and getting them paid – while focusing human judgment on those claims which are nuanced, complex, very costly, or suspected of being irregular.

27. The logic of CCPs (which takes into account a number of clinical parameters as well as other variables) is just too complex and may be too arbitrary to be encoded. Thus it would be exceedingly difficult to

[116] A good example -- is the specification of a standardized "Disposition Code" for each patient as they leave a health facility. Where did they go? (Home, Work, School, Morgue…) Were they referred to a higher- or lower-level institution? Were they to receive specialty care to further manage their chronic disease? This example illustrates the opportunity that the government has to facilitate better continuity-of-care especially as it relates to chronically ill patients. Some informat8ion is coded on this in CCPs but it is not uniformly used across facilities or used for analytical or monitoring purposes.

[117] This standard language of the insurance industry refers to the process which involves reviewing a payment request and assessing whether and how much the insurer should pay the provider who submitted a payment request for a service provided to the insured.

develop a "rules engine" which could adjudicate CCP-encoded claims.[118] Perhaps this is one reason why the NHIF has been left, as we are told, with the limited job of paying any claim which lands on its desk, with little or no critical review and without the mechanism to actually "reject" a claim back to a provider. As a result, the NHIF is unable to systematically review claims beyond assessing whether they meet some basic requirements and is thus probably not effective in stemming the inevitable "game playing" by providers who may be enticed to submit claims of dubious accuracy.

Consistency, availability, completeness, enforcement

28. A number of additional questions on the standards need to be answered.

- ✓ Are they consistent? Standards require active management and constant surveillance and a method for keeping them up-to-date. Lists of standards can sometimes include conflicting standards, which can create more problems than the lack of standard. It is one reason why constant vigilance and enforcement of standards is needed to be performed by a government department or agency which is focused on this task and has accountability for the performance of this task. It is probably not wise to outsource this to a vendor or vendors to do this if the proper oversight is not in place as this could lead to further fragmenting and the emergence of inconsistencies in the codes. For example, is it possible for two CCP codes to conflict with each other? To overlap with each other?
- ✓ Are they up-to-date and easily accessible? Standards age and suffer from entropy like all other artifacts. Today's standards may not be tomorrow's standards. Currently no effective way to communicate changes to stakeholders is in place in Bulgaria. The stakeholders need an easy way to always access the latest revisions and to be assured that the standard they are following is the very latest guidance from the MOH.
- ✓ Are they enforced? Of course standards have no value whatsoever unless they are actively and consistently used; this use must be encouraged and sometimes must be enforced. The authority to enforce these standards should flow from the MOH. (In some countries, there is a "licensing" agency within the Ministry which "approves" a design as compliant with the national standards; without this designation a company is not allowed to vend its product.). No such mechanisms appear to be in place in Bulgaria.

4.2.2. Provider Information Systems issues and problems

29. In general, largely due to the effective and skillful work of a few major vendors of Health Care Provider Information systems, the level of achievement of Bulgaria in the area of automating its hospitals and other health venues is quite high. The systems reviewed in a number of public and private hospitals, are modern and comparable to hospitals in similar countries.

30. Like all countries, Bulgaria now is at the cusp of having to deal with the following two issues which, while perhaps not directly related to the domain of health insurance, have even broader implications for further systems development. The following two issues are likely to be the catalyst for further development of Bulgaria's Provider Information Systems.

[118] This is likely one reason that much of the world has abandoned these kinds of parameter-based encoding methods in favor of "grouping" simpler sets of previously declared parameters (e.g. ICD-10 codes, CPT-4 codes…) to produce the DRG code for the case.

4.2.2.1. The emergence of a Bulgarian National Electronic Medical Record (EMR)

31. Still today, medical information (be it paper-based or electronic) is held "captive" by the individual hospitals. It is not possible to (easily) access information stored at another location. Information from incoming referrals is not always received at the receiving facility.

32. Thus, in general, Bulgaria hospitals (and other health facilities) operate independently of one another from an information point-of-view. Because information access is problematic, lab tests are duplicated (e.g. re-ordered unnecessarily) and Current Medication Lists are not accessible across the continuum-of-care both of which are so important to providing longitudinal health services especially for chronic-disease patients. Vital Problem Lists are not easily shared either which may contribute to the lack of understanding of a patient's comorbidities.

33. A national EMR will require that information be collected, according to common standards, from all health venues (public and private) to be accumulated into an easily accessible, but patient-confidentially-aware design. The national EMR will become the receptacle for all health information in the country, theoretically accessible by any accredited stakeholder anywhere, any time. This is the ultimate goal of Provider information systems.

4.2.2.2. The upward and downward referral problem

34. The handoff of patients between lower levels of care and higher levels of care is problematic. The referral mechanisms may minimally work to establish health insurance eligibility but they are inadequate to fully turn over responsibility of patients to the new hospital. The referral forms today are too limited and do not contain enough information for an efficient hand-off from one facility to another.

35. Similarly, the downward referral (returning a patient back to primary care in particular) is even more problematic. The Discharge Summary is often inadequate to smooth the desired continuity-of-care between levels once the patient arrives "home" at a lower level of care. This may explain why patients cling to their specialty providers for care long after a return to lower levels of care would be more convenient, more comfortable, and certainly more cost-effective. Without a smooth flow of "downward" information, patients might lack confidence that they will be adequately treated once they return "home", and for good reason, since the primary care physician may not be "let in on" all the details of the earlier episodic care rendered in the higher-level institution.

4.2.3. Payer Information System [HIIS]

36. The health insurance information system (HIIS) currently at NHIF is in crisis. It is crippled badly by a long period of neglect, caused largely by the absence of an ongoing maintenance contract. . Like automobiles, jet planes, etc. information systems require ongoing, high quality and professional care. Without the availability of this care, the current system is vulnerable to any kind of failure, since no repair option exists[119]. This is a very serious situation which deserves immediate attention and remedy. If the system were to fail, which is a considerable possibility, NHIF could be left without any automated support for its business processes. This would be akin to turning the clock back a decade and to resuming manual processing. This would be costly, inject inaccuracies, reduce transparency (thus possibly encouraging higher levels of potential abuse), and delay payments to providers dramatically. Given that the current system has been without maintenance for several years (since 2011) these risks are substantial and increasing with time. Even if the system were not to fail outright, as maintenance is deferred, since more

[119] A note was addressed to the Ministry of Health detailing the problem and possible options to resolve the issue.

and more of the processes of NHIF have changed due to regulatory changes, certain of the current system's modules become, and more modules will continue to become obsolete and thus abandoned because they no longer adequately reflect the current legal, financial and administrative realities. All systems need ongoing maintenance to keep them running optimally and also to keep them consistent with current regulations and practices.

37. Even if the immediate crisis situation is overcome, there are still other longer-term issues which the HIIS faces:

- ✓ **Comprehensiveness**. Is the existing system able to meet today's business needs of the NHIF? Of course the ultimate answer to this important question is "it depends". However, any move away from CCPs or any other major change in processing rules may be difficult to accommodate in the existing system which seems already to have been designed for a bygone era where the NHIF was expected to merely be an accountancy, a funds transfer mechanism. The current system can only produce routine monitoring reports which revolve around the payment and administrative control functions. Among a few examples, the following functionalities of the HIIS are very limited, or nonexistent:
    - monitoring of the insured population (beyond knowing a person's insurance status on any given day)
    - eligibility category
    - utilization of care across settings and over time for specific patients (and thus groups of patients) [120]

  These are among the most basic information an insurance fund would need to analyze risk, ask questions about quality of care, project expenditure and revenues. It is not clear at this stage whether the NHIF, given the constraints it operates under, actually needs to perform these functions, but it certainly would if its role were to evolve as it has in similar countries. In truth some entity in the health system must be able to do these functions aimed at managing public funds and this capacity is not in place today, nor is it supported by the existing HIIS.
- ✓ **Modifiability and expandability**. Closely related to the issue of comprehensiveness, the question then becomes, could one build upon and expand the existing system to add those functions upon which a new health finance scheme would need? It does not appear that the system design of the current system was built with an eye toward foreseeing that in the future significant changes (e.g. in provider payment methods) might occur.
- ✓ **Integrate-ability**. HIIS must span a large universe if it is to have enough information to determine whether a claim is complete, whether it is legitimate, whether the medical services were necessary and appropriate, etc. This means that the HIIS will one day have to be attached to the national EHR. It also means that data from the HIIS must feed into actuarial projections and other financial forecasting systems. Our experience to-date has been that it has been difficult, in many cases impossible, to extract data from the system for all but the most straightforward queries. (It is no coincidence that HIIS systems are sometimes depicted as an "octopus" whose tentacles reach into many other information databases in order to inform the best decisions.)

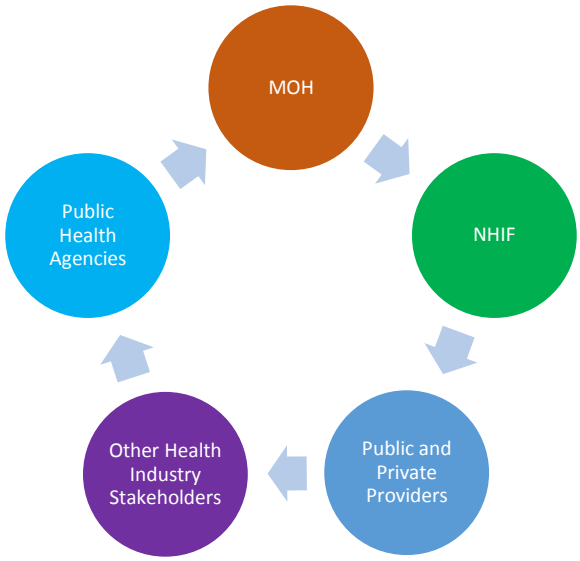
[120] In the context of this report, the team requested an age-gender profile of expenditure by district, which – despite all the best effort of the IT staff took nearly 6 months to process. Still, even after this period of time, it could not be completed and some numbers had to be estimated. This anecdote may represent the limited nature of the system's ability to respond to reasonable managerial inquiries.

38. On all these measures the existing HIIS at NHIF scores poorly. This is largely a result not of its intrinsic, original design strengths but rather stems from the fact that it has not been continually maintained and expanded as the business processes of health insurance have changed. It would appear that the NHIF instead chose to abandon certain modules of the HIIS which had been made obsolete by changes in the regulation or the business process rather than continually adapting them to the changing situation. Now, as a result, the current HIIS appears hopelessly outdated. Whether it could be resurrected into being a vital system once again. New systems requirements will no doubt emerge and become more urgent if significant payment reforms are to be undertaken or if the NHIF is indeed given discretionary powers to more fully adjudicate claims rather than just pay them without scrutiny.

4.2.3.1. Connectivity and transaction links

39. The other key element, which binds all these elements together is the connectivity links which facilitate the sending/receiving of claims between NHIF and the providers, and between and among the providers (for the purpose of forwarding patient data as the patient moves from one venue to another), and of course between all these parties and the MOH itself.

Figure 61: Health industry's connected stakeholders



40. In Bulgaria, it appears that this connectivity network is reasonably well established, however it does not appear to be centrally managed, therefore its performance may be unpredictable since there does not appear to be a consistent Service Level Agreement [SLA] in place. Having a consistent SLA is rapidly becoming more important as we continue to be increasingly dependent on reliable, fast broadband connections.

4.2.3.2. A proposed message set linking payers and providers

41. To facilitate the payment of providers based on their submitted claims, the key functionality of the network should allow for the easy transport of transactions between NHIF and the providers. A message set composed of the following business functions is suggested (In order of importance)[121]:

1. Claims submission, (a message from provider to payer)
2. Claims returned as "rejected", (a message from payer to provider)
3. Claims resubmission of a previously rejected claim, (from provider to payer)

4. Eligibility inquiry, (from provider to payer)
5. Eligibility inquiry response, (from payer to provider)

6. Claims status inquiry, (from provider to payer)
7. Claims status inquiry response, (from payer to provider)

8. Provider Payment, (from payer to provider)
9. Refunds or adjustments, (from provider to payer)
10. Payment advice which details the payments and what they are for, (from payer to provider)

11. Request for additional clinical information, (from payer to provider)
12. Submission of additional clinical information, (from provider to payer)

42. This list is provided to give a sense of the strength of the connectivity network which is needed to support "the business of health insurance" as it is transacted by the two main partners – the service provider and the payer.

43. The health information network which currently exists in Bulgaria may not be robust enough to support the depth and breadth of these transactions. It appears that further strengthening will be needed by adding higher speed links (where needed), more security of transmissions and more central oversight (in a Network Management Center?) to make sure these transactions can be completed in a timely and reliable, and secure, manner.

4.2.4. Summary and SWOT analysis

44. A brief summary and capsulation of points is offered here, as a way of focusing back on the main theme of this report and its main question – Are information systems in Bulgaria ready to carry the country into a more advanced era when health financing mechanisms will undoubtedly become more complex (as the country continues to strive for higher quality and lower costs) and as other information-system-related developments (such as the emergence of a national Electronic Health Record) emerges?

45. Health Information System Standards (Health Data Dictionary) will require considerable attention. Although standards have emerged as a natural by-product of the dominance of a few information systems

[121] Streveler, D., *Health Management Information Systems: Linking Purchasers and Providers*, in Langenbrunner, J. et al, Designing and Implementing Health Care Provider Payment Systems: How-To Manuals, World Bank Press, 2009.

vendors, a more top-down approach will be needed to continue their development. This will need to be overseen by the Ministry of Health but involve as many as possible of the various stakeholders in the health industry, including the private sector.

46. The complicated issue of whether to keep the existing CCP method of encoding hospital cases for payment or moving toward DRG case-mix encoding will continue to require continued thoughtful discussion. Much of the world has adopted the DRG method. Looking at this question squarely from an information systems perspective, the adoption of the DRG would facilitate the move to more automated adjudication of claims.

47. Provider Information Systems should continue to advance naturally, as a result of improvements in technology and as the world continues to develop systems which improve the healthcare delivery processes directly, and health finance processes indirectly as a by-product of the real-time systems in place in the health facilities. They will no doubt end up contributing information into the national EHR which will force new communication links to be built to accumulate the data from the individual facilities so they can be shared more easily.

48. The Health Insurance Information System is in a desperate situation at present and could fail. Beyond this immediate crisis, which we trust will be addressed and mitigated in the near future, the challenge will then be to plan for the next generation of HIIS.

49. The next HIIS will need to be considerably more robust than the current system in place at the NHIF. It will need to have far more robust forecasting and financial modeling capabilities. It will need to have better workflow management so that the “factory-like” processing of claims results in accurate and timely payment, is regularized, and is far less labor-intensive than it is today. Finally, the next HIIS will need to be able to accommodate a far larger variety of provider payment methods which might include the DRG, hybrid capitation, incentives and pay-for-performance (P4P) regimens and a large range of other predictable requirements which will surely arise in the next few years. Since systems development efforts can take several years, the time to address the future of the HIIS in Bulgaria is now.

50. To conclude, the SWOT analysis on the next page puts the assessment in perspective.

Strengths	Weaknesses
Bulgaria is a European and EU country with close cooperation with its members. EU-Health is an effective leader of the eHealth applications design, because it sets standards for international interconnections, such as the epSOS system for reciprocal health services.	The cooperation between NHIF and MOH in the systems area could be improved. The "wiring" of the health sector should be carefully monitored and guided by MoH so as to make connections between providers and payer as efficient as possible. However individual entities also are best able to understand their own requirements and thus play a leadership role in some applications. This applies especially to NHIF whose systems have very specific requirements in specific domains.
Bulgaria has an excellent education system for the training of STEM (science, technology, engineering, mathematcs) students thereby assuring a steady supply of well-trained professionals.	The political nature of the eHealth leadership position at MOH may lead to frequent turnover of this crucial position which can cause a lack of continuity, a fluidity of strategies and confusion among lower levels. Design activities can take some years, and it is important to create as stable an environment for a development strategy to blossom. Significant and abrupt changes can be detrimental, delay progress and cause inefficiencies.
	The IIS system at NHIF is now quite antiquated and has provides insufficient management information for board members and managers at the Fund. This might partly explain the limited capacity of the NHIF to manage risks and negotiate reforms.
Opportunities	**Threats**
While Bulgaria does not appear to have a formal Health Data Dictionary (defining standards for coding and communication clearly) the fact that a few dominant vendors have captured a large percentage of the provider system marketplace provides a basis for creating a formal HDD based on the de facto one which now is emerging.	The IIS at NHIF is in a serious state of disrepair and lacks any viable support mechanism. This is a serious threat to the viability and sustainability of the business processes at NHIF, and could potentially cause the total collapse of the system. If this were to occur, it would likely be necessary for NHIF to revert to a manual (paper-based) processes which would be a serious step backwards, likely create inaccuracies and inconsistencies in adjudication, delay payments to providers, and weaken accounting controls and management information. (Ref: White Paper on this subject.)
Bulgaria has a long experience in designing, installing and using provider-based information systems. This previous experience allows further advances to be created in perhaps less time than other countries might take. A national Bulgarian EMR is a possibility here, linking all levels of care, and perhaps also inviting participation from the private sector. A good connection between provider systems and the payer system can also be managed by creating a strong mechanism for the exchange of data between these partners.	Despite a steady supply of STEM- and computer-trained professionals, Bulgaria loses many of them to the "brain drain" caused by higher salaries in most other EU countries. Thus staff turnover and the resulting breach of continuity are serious threats. Outsourcing the development and support efforts might be part of the solution.

Opportunities	Threats
	There is currently no evident discussion about what the next generation of systems for NHIF should include. No Requirements Study has been started yet. Since the time needed to develop a new system (or procure/install a new system) is several years, the NHIF must try to predict its needs far in advance.

4.3. Overall governance and operation of the NHIF: a summary assessment

51. Like all countries, Bulgaria's health financing system embodies major transformations over its predecessor Shemasko Model; yet, it also faces serious challenges. Some of these challenges result from the country's demographic and epidemiological transitions, others evolve from the country's challenging economic situation, while yet others result from governance and regulatory issues, problematic policies and implementation procedures.

52. Bulgaria spends more than other income comparators. Total and private spending are higher and public spending is similar to global averages. Health outcomes are average and financial protection at both macro and micro levels is poor, inequitable, and declining. Given Bulgaria's already high fiscal effort and challenging future growth prospects, sustainability will be a challenge. Efficiency gains are the key area for generating future fiscal space and such gains can be found in NHIFs purchasing procedures for services and pharmaceuticals, better rationalization of the BBP on the basis of cost-effectiveness and financial protection criteria, holistic control over and enforcement of financial and clinical policy levers that effect spending, etc. Thus assessing the structural and operational performance of the NHIF is essential for establishing the health financing reform baseline. Indeed, as the core health financing institution, it should help design and should in all likelihood be driving implementation.

53. A recent World Bank study 122 highlights some key governance features critical for efficient management of a mandatory health insurance fund against which the NHIF should be evaluated. These include:

a. Coherent decision making structures that influence the direction (stewardship) of mandatory health insurance, its stability and independence.

b. Stakeholder participation which influences the accountability of the systems and appropriate representation in the decision making structures.

c. Supervision and regulation which assures compliance, an even playing field under competition, and early intervention and sanction when needed.

d. Transparency and information to allow for appropriate stakeholder participation and supervision.

e. Consistency and stability, to avoid changes of the rules and regulation based on short term political considerations.

[122] William Savedoff and Pablo Gottret, *Governing Mandatory Health Insurance*, World Bank, 2008.

54. From a high-level perspective, the NHIF has potentially a number of assets going in its favor: it efficiently pools risks at the national level, it carries the responsibilities for funding nearly the entire spectrum of care (with the notable exception of emergency care), and, as the single largest unified health payment entity, is in a monopsony position vis-a-vis providers it purchases services from on behalf of the insured.

55. Yet, in practical terms, the governance structure which frames the organizational structure and operational policies of the NHIF undermine its performance with respect to its implementation of financing functions and achievement of financing goals. In particular, its underlying legislative and regulatory environment as well as operational procedures are not stable, transparent and inclusive and generally do not meet the preceding good governance criteria. They appear to misalign responsibilities, authorities, and expertise. They provide no mechanism to assure solvency and sustainability, and result in inefficiency and costly hospital-centric treatment incentives. The result is a fragmented decision-making and operational environment that precludes a holistic and effective approach to policymaking.

56. As a starting point, it would be difficult to argue that the NHIF environment has been consistent and stable (point e). Indeed, the numerous laws and ordinances which govern the NHIF have been changed nearly a hundred times since its creation. Further, few of the 12 NHIF governors have stayed at the helm more than a year, or long beyond a general election which saw a change in majority.

57. These quasi-anecdotal remarks however point to more fundamental questions regarding the NHIF governance model which need to be addressed and mostly pertain to the first and most critical point above and the need for a coherent decision making structure, effective stewardship and - to a degree - independence.

58. On paper, the NHIFs public financial management responsibilities span all three phases of budget management – formulation, approval and execution123. The NHIF is ultimately accountable for meeting its obligations to provide the services included in the benefits package to all insured within the allocated budget. In order to assure their solvency, mandatory health insurance funds typically are able to use a number of policy levers, which can be organized in three broad categories.

- ✓ On the revenue side, the adjustment of contributions and the management of reserves. The contributions rates and rules for determining transfers to be received by the NHIF are set in the health insurance law. While this feature is certainly not unique, the NHIF appears to have very little information about: (i) the provenance of the contributions it receives, including from the state on behalf of the statutorily covered populations, (ii) how they relate to the specifications of the law, and (iii) how many people contribute and their contribution history. It is therefore not in a position to assess the adequacy of the contribution levels given the risk and socioeconomic profiles of the insured, to determine how its revenues might evolve over time and to assess and proactively manage any risks (health and equity) which might arise from changes in the profile of its insured population or their contributions /transfers. In terms of reserves, by law, the NHIF must constitute a provision of 10 percent of the contributions it receives for contingencies and urgent expenses, which the supervisory board has the authority to expend. In principle, the funds available in the NHIF budget at the end of the year, including those resulting from over-fulfilling the revenues target or from economies in the payments for costs and transfers, are transferred at the end of the year as a transient balance in the NHIF budget for the next year. Unexpected changes in the NHIF budget deficit must

[123] See Marco Cangiano, Teresa Curristine, and Michele Lazare (eds.), *Public Financial Management and Its Emerging Architecture*, IMF, 2013.

be accommodated in the consolidated fiscal program, and comply with restrictions under the law on the maximum size of the spending and deficit of the consolidated fiscal program, fixed in the Public Finance Act.

- ✓ On the expenditure side, a first critical lever is the management of the "entitlements" or "benefits" guaranteed to the insured. These "entitlements" primarily include the list of goods and services the insured have access to (basic benefits package). They also cover the circumstances in which services may be received by whom. This includes deciding which services are covered in the basic benefits package under which circumstance (in other words clinical policies about who should receive what services when), which medicines are covered, as well as copayment requirements. As described in other parts of this report, many of these elements are set by the law and through ordinances and not directly by the NHIF. In fact, other institutions including the Ministry of Health and the Pricing Council for pharmaceuticals set most parameters. For instance, through ordinances, the Ministry can add new CCPs, define the services which should be received by dispensary (chronic) patients, set referral rules, etc. The Pricing Council, decides on the inclusion of drugs as well as their reimbursement rates. At the same time, neither of these institutions is accountable, responsible, or has the necessary expertise for ensuring that the NHIF budget is sustainable. In addition, there is no evidence that these decisions are individually based on thorough economic and financial analyses of their current and future implications for the NHIF budget or that any single authority has the mandate, tools, or authority to assess their collective impact and ultimately decide whether or how they should be financed and what trade-offs they might require. In many respects, the responsibility for defining the contour of the benefits package and the accountability for actually delivering it within a given budget are not aligned.
- ✓ Contracting and payment methods constitute the second category of levers for managing expenditure. Chapter 3 extensively discussed how the current payment and contracting methods contribute to reinforcing some of the features of service delivery which undermine its capacity to effectively and sustainably cope with the burden of NCDs and in particular the widening imbalance between inpatient and outpatient care. To highlight the most critical issues:
    - In the current legal system, no entity has - or feels empowered to exert - the authority to limit the entry of new providers into the market and to decide whether or not they should be contracted. Essentially, if a facility opens which meets some basic criteria, its license cannot be denied and if licensed, the NHIF cannot refuse to contract with it. The NHIF therefore does not have the authority to make 'selective contracting' decisions based on efficiency and quality metrics – or even based on population needs.
    - A set of rules on mandatory referrals (for instance for GPs towards specialist) combined with caps contribute to limiting the amount of care on an ambulatory basis. Conversely, the limits on how much hospitals can deliver are difficult to enforce. Hospitals, which are paid on a case basis, have strong incentives to increase volume. Further, the features of the CCPs are such that (i) hospitals can – or are incentivized to - admit patients who could be treated on an outpatient basis, (ii) are forced to practice in ways that may be inefficient and/or harmful to patients (because CCPs are prescriptive about what should be done, how long a patient should stay etc.) or (iiI) may have incentives to manipulate the information reported in order to secure payments.

- In theory, contracting and payments should - and even could - be used and adjusted by the NHIF to promote and reward quality and efficiency at individual providers' levels as well as across the system. Yearly negotiations between the NHIF and the BMA take place on the national framework contract (which includes clinical parameters such as the algorithm defining the CCPs), prices, and volumes. On paper, prices should be elaborated based on a costing methodology developed by the NHIF and reviewed by the Ministries of Finance and Health; clinical parameters should combine rigorously evaluated best practices and economic considerations about the affordability of the benefits package. The reality is that ultimately the national framework contract and price-volume negotiation are the only instruments available to the NHIF to manage its budget constraint and to the providers to try to meet their revenue goals. On the provider side, this negotiation is also a chance for various "specialties" or categories of providers to promote specific agendas. At the end of the day, the negotiations are more political than technical and more confrontational than aimed at collectively resolving systemic problems which limit the performance of the health system.

✓ In sum, the NHIF only has a limited set of instruments to effectively fulfill its public financial management responsibilities as the country's single universal mandatory health insurer. In particular, it faces important barriers in using the main level effectively available lever given the above set-up: to become an 'active' purchaser. First, it lacks some critical legal instruments. Further, the NHIF, perhaps due to a combination of frequent changes in leadership and legal framework, appears unable to promote changes which could meaningfully contribute to reorganizing the system and improving its performance. As a result, the NHIF is more or less confined to being the front line guardian of financial targets and a payment agency. In this context, the Government sets the limits, but also is the payor of last resort in case of overruns.

59. The fragmentation and misalignment of roles and responsibilities between the NHIF, MOH and MOF need to be resolved if only because they perpetuate a costly and inefficient system. Future cost projection studies suggest that the financial pressures generated by the current service delivery and payment arrangements coupled with demographic and epidemiological changes will not abate, and it would be important to promote service delivery reforms which will help curb the costs and use the NHIF to leverage their implementation. A closer working relationship between NHIF and MOH might mitigate some of these problems (extensiveness of BBP, better alignment of medical practice standards and payment policies, ceilings and referral policy). One could even argue that this alignment could be more easily achieved if the NHIF were reorganized as a department of the MOH or MOF. Ultimately, a decision needs to be made about who (NHIF, MOH, MOF) has the final authority and the responsibility for ensuring the system is – and remains – efficiently run and financially sustainable.

60. The assessment and the work undertaken so far also suggest that even if conditions were met for the core insurance and public financial management functions to be organized coherently, the system would still need to develop some essential tools in order to implement them. The preparation of this report sheds light on a number of gaps in terms of tools and information available: the NHIFs health information system severely compromises its operational effectiveness and is inadequate to face future needs. Developing and using economic and financial instruments such as actuarial studies and cost-effectiveness analysis are necessary conditions for effective policy design and implementation. Current information gaps including data on access to care by the insured and uninsured by socio-economic and health status characteristics, as well as detailed information on the revenues for the NHIF need to be addressed.

61. To conclude on a policy note, the fragmentation and misalignment of roles and responsibilities precludes an effective holistic approach to health financing policymaking and implementation. On the one hand, some of the basic health policy goals embodied in the countries' Health Strategy including the need for more primary care, prevention and management of NCDs, and long-term care (LTC), are not fully analyzed in their health financing dimensions. On the other, some core health financing issues receive very limited attention. First, the question of how to expand coverage to the uninsured is mostly viewed as a problem of enforcement in the domain of the NRA. Yet, this could be justified on equity and efficiency grounds: the uninsured populations are largely indigent and they tend to access the system late and not necessarily in a way which will ensure the best outcomes for the money invested. Second, the financial protection for those who are insured is poor, inequitable, and not improving. Out-of-pocket payments are very high, they represent a barrier to access and are impoverishing a significant number of households.

62. To summarize, the NHIF lacks the authorities to effectively fulfill its role and responsibilities as the country's single universal mandatory health insurer. The 100 or so amendments to the original law and the numerous other interactive regulations have fragmented authorities and decision making and preclude transparency, the fulfillment of public financial management responsibilities, and a holistic approach to policy making and implementation. This diagnostic echoes the conclusions of a December 2014 report prepared by the NHIF (an abstract of which is

63. Box 4).

Box 4: NHIF decision-making and regulations: an impact analysis

A recently published paper by the NHIF provides a detailed assessment of how numerous regulatory changes, many politically driven, have diminished and co-opted the ability of the NHIF to effectively implement its mandate and have increasingly "transformed the NHIF into an ordinary payments agency, which is a body for implementing decisions adopted outside it and without its active participation and coordination." In particular:

"With the adoption of the Health Insurance Act in June 1998, health insurance was introduced in the Republic of Bulgaria as an activity of collecting health insurance payments and premiums, management of the accumulated funds and their spending to pay for health care activities, services and goods provided for under this Act, in the national framework contracts (NFD) and in the insurance contracts.

The mandatory health insurance as an activity for managing and spending the funds accumulated from mandatory health insurance payments for health care activities was assigned to the National Health Insurance Fund (NHIF) and to its territorial subdivisions: regional health insurance funds (RHIF). The mandatory health insurance guarantees a basic package of health care activities that are reimbursed out of the NHIF budget.

Since the law was passed to this day, it was subjected to 91 amendments and additions. These amendments and additions were also reflected in changes in the National Framework Contract, in the ordinances adopted by the Ministry of Health (MoH), as well as in the medical standards adopted by the MoH for the different specializations.

The overall legislative and regulatory activity was reflected on the work and effectiveness in the management of the resources and on the NHIF stability.

The principal impacts on NHIF influenced:

1. its ability to exercise real control on the spending of the funds to reimburse health care activities, services and goods;
2. the ability to plan the financing correctly on the basis of the population's real needs of health care services and goods;
3. the ability to conduct policies for effective control and spending of the citizens' finances and public funds provided for management;
4. the ability to participate in the MoH decision-making on the types, quantity and quality of the health care services and goods to be reimbursed out of the NHIF budget;
5. the ability to engage in real negotiations with the professional organizations on the type, quantity, quality and the price of the services that NHIF buys from them.

The decision-making and the implementation of the decisions through new regulations, or their modification, transformed the NHIF into an ordinary payments agency, which is a body for implementing decisions adopted outside it and without its active participation and coordination.

The decisions adopted by the politicians often contravene the NHIF Budget Act, as well as the Public Finances Act, which additionally complicates the activities of the NHIF and threatens its stability.

It is also necessary to note the strong influence on the NHIF activities on the part of the numerous groups with diverse interests, which easily pass decisions without analysis of their impact on the effective spending of the NHIF finances, notably the professional and patients' organizations, organizations of the type of the scientific medical societies, of the employers, the unions, and of the corporate and pharmaceutical companies, different unions like those of the hospitals at different levels, etc. The numerous national consultants played a particularly prominent role in this process by offering opinions that often fail to take into account the limitations of the NHIF budget."

Source: "*Decision-making and changes in the regulations and their impact on the activities and stability of NHIF",* NHIF, November, 2014, p.1.

Chapter 5. Strengths and Weaknesses of Bulgaria's Health System: the Health Financing System Reform Baseline

1. This chapter provides a health financing reform policy baseline for Bulgaria, based on the assessment of the strengths and weaknesses of its health system, and with an eye to lessons learned from best practices in Europe and emerging market economies. The objective of this diagnostic phase is to understand how the health financing functions contribute to Bulgaria's health system performance in terms of improving health outcomes, providing financial protection, and being responsive to consumers in an equitable, efficient, and sustainable manner. As discussed previously, health financing interacts with all the other aspects of health systems, as well as with other institutions and factors outside the health sector that affect health. As there is no globally accepted taxonomy with which to classify systematically a health system's strengths and weaknesses, the discussion concluding this diagnostic phase is organized around a set of core messages that emerge from the analysis, both in terms of performance and organization.

2. This chapter thus assembles the diagnostic elements previously discussed and weaves them into a map of the broader strengths and weaknesses that represent the policy baseline for reforming specific institutions and features of the system. Recognizing that health systems are extremely complex, the intent here is to get a snapshot of the major performance parameters, their interactions, and their 'likely' causality[124], irrespective of how they are organized typologically. As the next phase of the work will be analyzing priority areas for reforms, suggestions are made on potential areas of focus for the next phase of the work **in the Health Financing areas covered by this RAS agreement.** These suggestions are intended only to *begin* a discussion, as it is not possible to explore all potential areas of reform in great detail.

a. Bulgaria's health outcomes are average, but its underlying public health programs, system incentives, and delivery system configuration need to better align with present and future demographic and epidemiological transitions.

3. Bulgaria's health outcomes are average for its income and health spending levels, although both are below EU averages. Over time they have not improved as rapidly as in neighboring countries. Such outcomes are a function of many factors including individual behaviors, underlying disease burden, government public health and physical and financial access to care, the configuration of the human and physical health delivery systems, and other social determinants of health.

Strengths and opportunities:

- Bulgaria's health outcomes are comparable to those in other countries with similar levels of income and health spending.
- Bulgaria has well developed and extensive public health programs including smoking bans.

[124] As previously discussed, while directly attributing causality is very difficult, we attempt to use the quantitative information and the globally accepted health policy framework of goals and objectives, global experiences, actuarial science, etc. to objectively and empirically analyze the impacts of various system features and policies.

- There is a well-developed and comprehensive health care delivery system throughout the country.
- Most providers are autonomous entities and the purchaser provider-split creates space for strategic purchasing and arms-length accountability.
- A National Health Insurance Fund covers the majority of the population thereby providing financial access to a comprehensive benefits package of care.
- Uninsured individuals can receive free treatment in case of emergency.
- The NHIF has become over time the single largest uniform purchaser of health services responsible for providing a wide spectrum of care (cancer drugs were most recently added).
- The NHIF thus can have great influence as a monopsonistic purchaser over the entire health system.
- Payment systems have been modernized and contain elements of global best practices (e.g., capitation for GPs, budget holding for ambulatory care providers, case based payments for hospital care).

Weaknesses and Threats:

- Public health programs are not well aligned with the large and increasing NCD burden[125].
- While recognizing the evolving NCD burden, the MOH Strategy lacks adequate resolution of the necessary tradeoffs among competing priorities of the country's health needs.
- The service delivery system is based on an acute care model, and not well suited to preventing and treating NCDs cost-effectively. The emergency care system as currently constituted may also contribute to this bias toward inpatient care.
- There are too few primary care physicians and the majority of them are not adequately trained in family medicine and the management of NCDs.
- The health workforce is rapidly aging, nurses are in short supply and large numbers of young health workers chose to migrate.
- The long term care system, including its social services aspects, is not well developed and poorly integrated with the acute health care system.
- The NHIF basic benefit package, while extensive, is not based on cost-effectiveness criteria and is oriented to acute care, rather than being focused on the impending NCD burden.
- The NHIF is not adequately empowered or capable of leveraging its purchasing power. In particular, it must contract with any willing provider that is certified, thus precluding it from using selective contracting to ensure both efficiency and quality. Nor does it have an adequate information system to allow for strategic purchasing of services (see IT section below).
- The NHIF has no means of penalizing hospitals for poor performance and has not been successful in enforcing GPs to perform their 24-hour monitoring function. The latter contributes to inefficient use of resources by encouraging unnecessary emergency care.
- The bias towards inpatient care is reinforced by the payment arrangements used by the NHIF, which limit ambulatory care and create strong incentives for inpatient care over other modalities.
- CCPs, initially designed as clinical tools, and now used as the basis for case payments generate important distortions in terms of efficiency and fairness.

[125] Dimova, Popov, Rohova (2008) health-care reform in Bulgaria: analysis. Sofia, Open Society Institute.

- High OOP costs for drugs used in primary and secondary prevention of cardiovascular disease and management of other chronic conditions are likely to be undermining both access and adherence to treatments that are important for delaying or preventing disease progression, thereby increasing downstream costs.

Possible priority areas for reforms

- Reassess NCD policies and the public health framework and reprioritize as necessary.
- Develop a comprehensive assessment and long term strategy for human resources in the health sector.
- Over time, rebalance service delivery by
    a. Developing of a needs-based hospital and long term care master plan for both human and physical capital in light of the present and future NCD burden with strong normative objectives including reducing inequality in access, improving quality and coordination across all levels of care.
    b. Reorganizing service delivery according to the plan and empowering the NHIF to fully leverage its purchasing power.
    c. Strengthening primary and ambulatory care.
    d. Re-assessing the role emergency care can play in ensuring access and continuity of care within the continuum of care and orienting patients in the system.
    e. Assuring better coordination between MoH and NHIF funded activities and programs.
- Modernize and strengthen quality assurance and monitoring at all levels of the delivery system.
- Align payment systems and accountability mechanisms to support the reorganization of service delivery and improve the incentives to provide treatment at the right level of care and coordinate across levels by:
    a. Reviewing NHIF payment policies, in particular for hospitals.
    b. Implementing contracting reforms (such as instituting positive incentives in the various risk sharing arrangements and allowing selective contracting).
    c. Linking payments to results and quality using tools such as DRGs and other pay for performance/ value-based purchasing models.

b. Bulgaria invests adequately in health but needs to manage macro-fiscal risks and major future health care cost pressures moving forward (aging, declining labor force)

4. Bulgaria's total, private and OOP spending are above global averages and public spending is average. Despite Bulgaria prioritizing health in its budget, its overall expenditure is being driven largely by private spending, levels of financial protection are well below WHO-recommended thresholds, and are diminishing and inequitable. Excess health care cost pressures and limited economic growth arising from a declining population and labor force, coupled with the ageing of the population and a very challenging fiscal environment, will place additional demands on both health spending and future government revenue raising potential. As a result the major opportunities for 'additional' health financing lie in efficiency gains in the current system through reforms in service delivery, payment procedures, the BBP, pharmaceutical policies, and management.

Strengths and opportunities:

- Bulgaria's overall revenue raising and public expenditure efforts are high.
- The revenue sources used to finance the overall budget and health sector appear to be pro-growth.
- The financing of the NHIF appears to be relatively equitable, especially as formal sector workers subsidize the disadvantaged groups financed by the Government and in particular the elderly.
- Bulgaria prioritizes health in terms of total spending on health and public spending on health (as a share of total government spending).
- Bulgaria's fiscal framework is solid and the budget law, voted in Parliament, includes the budget of the NHIF.
- Any shortcoming of revenues or excess in expenditure is explicitly managed through reallocations in line with the finance law.
- Bulgaria can position itself to access EU Structural Funds in the context of the 2014-2020 financial perspectives.

Weaknesses and Threats:

- A rapidly declining (and aging) population and labor force will give rise to significant future cost pressures, and limit future revenues.
- The declining population and labor force, lack of natural resources and Bulgaria's underlying industrial structure create a very challenging future growth and fiscal space situation.
- Private spending is well above levels in other countries, and as 98 percent of it is OOP, there is almost no risk pooling or financial protection. Its increasing share dilutes the market influence of the NHIF.
- Bulgaria approach to policy-making, implementation, evaluation, and reform is not comprehensive. High turn-over in leadership and frequent changes in legislation have resulted in a fragmentation in decision-making, together with misalignment of responsibility, authority, and expertise.
- More specifically, the NHIF lacks the authority to fulfill its roles and responsibilities effectively as the country's single universal mandatory health insurer and largest unified payer.
- Decisions on the benefits package are taken without due consideration to economic criteria including cost-effectiveness and long term financial impact for the NHIF.
- Insufficient weight is given to ensuring that medicines and other health technologies, covered services and clinical treatment algorithms are cost effective and represent reasonable value for money in Bulgaria.
- The escalating trend in hospital admissions over the last decade will continue if measures are not taken to change the hospital-centric situation and realign incentives toward a more efficient, primary care focused, service delivery system.
- Current policy settings do not foster competition in the off patent medicines market and do not promote the use of cheaper, generic medicines.
- Whereas structural reforms of service delivery have the potential to improve sustainability, they are lagging behind.

Possible priorities for reform:

- Prioritize reforms which increase the efficiency of public spending, including those listed above to reorganize service delivery, develop and implement purchasing/contracting reforms.
- Revise the governance framework to better align responsibilities and authorities.
- Review the BBP to improve cost-effectiveness of existing spending – starting with medicines.
- Develop a cadre of staff with the necessary skills and tools (e.g., a refined actuarial model) that undertakes actuarial, cost-effectiveness, and other analytic studies for management, policy-making, and impact evaluation purposes.
- Develop IT systems of the NHIF to allow risk management and the routine analysis of data by socio-demographic characteristics, disease profile, types of providers.

c. Bulgaria has a mature health insurance system providing universal coverage to some 90 percent of its population, thereby pooling risks and promoting solidarity at the national level, but leaving some people out and providing limited and diminishing financial protection.

5. The NHIF was set up to provide universal coverage 15 years ago but currently some 7-12 percent of the resident population lack coverage. The poorest half of the population (i.e., those with limited ability to pay premiums) accounts for about 70 percent of the uninsured with the poorest quartile accounting for 43 percent. There also appears to be a significant amount of churning – people moving in and out of uninsured status (i.e., 6 percent of the population changed coverage status between 2010 and 2013, but nearly half of the uninsured in 2013 had been covered in 2010) -- thereby subjecting a much larger share of the population to periodic denials of financial protection.

6. Despite increased spending on health, private out of pocket spending has increased at much faster rates than public spending from 26 percent of total health spending in 1995 to 48 percent in 2012, more than double the WHO financial protection thresholds with pharmaceutical spending accounting for some three-quarters of OOP. Impoverishment from large OOP medical expenses is also getting worse with 4.2 percent of households being impoverished in 2013 compared to 3.8 percent in 2010.

Strengths and opportunities:

- The NHIF, as the single compulsory national health insurer and risk pool for the entire population, pools health risks efficiently and comports with global tends toward centralization of risk pooling.
- Some 90 percent of the population is currently enrolled including most children and most elderly whose coverage is subsidized by the state.
- The NHIF relies on a diversified set of revenues, mainly (i) social insurance contributions from employers (including the Government on behalf of civil servants and other public employees), employees and the self-employed , and (ii) government general revenues.
- The Government provides – and finances – the coverage of numerous 'needy'/high priority groups (including the children and the elderly).
- The benefit package covered by the NHIF is comprehensive and includes modern technologies and innovative medicines.
- Efforts are made to ensure access to coverage to the most vulnerable and poor (e.g. the unemployed, individuals with disabilities, eligible for social support, etc.)
- All citizens have access to free emergency services, which constitutes an important safety net.
- The NHIF revenue structure appears to promote redistribution across groups.

Weaknesses and threats:

- Almost 70 percent of the uninsured are poor or near poor and have limited ability to pay premiums, suggesting opportunities to improve equity in access to NHIF coverage.
- Financial protection is poor, with OOP payments at 48 percent of total health spending, double the recommended WHO 20 percent threshold and the 1995 OOP level.
- OOP is inequitable as the poor spend a much higher percentage of their non-food incomes on health care (6.8 percent) than the non-poor (4.1 percent), and these inequities have worsened over time.
- Bulgaria ranks second only to Latvia when it comes to self-reports of unmet need among the lowest income quintile (over 20 percent).
- OOP spending as shares of total health spending and GDP and per capita is well above the levels found in other comparable income countries.
- Medicines account for some three-quarters of OOP costs, raising concerns about the effectiveness of NHIFs BBP pharmaceutical coverage, copayment and pricing policies.

Possible priority areas for reform:

- Regularly generate the information required to understand and monitor the nature, burden and explanatory causes of out-of-pocket payments to develop and target policies to improve financial protection.
- Develop policies to ensure coverage of the uninsured.
- Develop options to reduce the magnitude and increase the clarity and predictability of copayments, with priority emphasis on the medicines included in the BBP.
- Assess the potential for private supplementary insurance to improve financial protection and equity in the system.

d. A pharmaceutical policy framework with European standards of regulation but suboptimal listing and pricing processes and inadequate linkages between supply and demand side policy levers, leading to uncontrolled growth in expenditure and inadequate financial protections for patients.

7. Pharmaceuticals account for some 37 percent of total health spending, compared to an EU average of 25 percent. The pharmaceutical sector in Bulgaria critically lacks an overarching, integrated national medicines policy to guide priorities and to integrate and ensure consistency in policy settings. Current policy appears most acutely focused on limiting NHIF outlays, rather than promoting access and providing financial protection to patients, to an extent that may be increasing downstream costs in the health care system.

8. While regulatory standards and processes have been largely brought into line with current EU standards, mechanisms for listing and pricing medicines on the Positive Drug List (PDL) are not ensuring adequate value for money for the NHIF, and are contributing to rapid growth in drug expenditures. Prices for many patented and off-patent medicines compared are as high as (and at times higher than) in countries with far greater capacity to pay, thus many high cost medicines currently subsidized are unlikely to be cost effective in Bulgaria.

Strengths and opportunities:

- Regulatory processes in line with European standards.
- A comprehensive Positive Drug List.
- Coverage of a range of high cost medicines, available without copayment.

Weaknesses and threats:

- Lack of an overarching national medicines policy to establish agreed priorities and guide consistent policy development.
- Inadequate consideration of cost effectiveness or affordability in current approaches to selection, listing and pricing of medicines on the PDL.
- Lack of evidence based clinical treatment guidelines, and inadequate controls on prescribing and utilization.
- A copayment structure that creates excessive out of pocket costs, creates uncertainty for patients, and undermines adherence to treatment.
- Policy settings that do not actively promote the use of generic medicines or adequately facilitate competition in the off patent market.

Possible priority areas for reform:

- Implement pharmaceutical reforms beginning with the development of an integrated national medicines policy that explicitly defines priorities and guides future policy settings.
- Review processes for listing and pricing of medicines to ensure all new medicines are assessed for cost effectiveness (value for money) and budget impact (affordability) in Bulgaria.
- Introduce risk sharing arrangement for high cost medicines to ensure levels of cost effectiveness assessed prior to listing are achieved in practice.
- Establish mechanisms to promote prescribing, dispensing, uptake and confidence in generic medicines, reduce incentives for prescribing and dispensing higher cost medicines, and facilitate competition in the off patent market.
- Review the PDL to identify medicines unlikely to be cost effective in Bulgaria, and consider delisting, price renegotiation, risk sharing arrangements or tighter restrictions on use as necessary.
- Review clinical treatment guidelines and algorithms to ensure they reflect cost effective and rational use.
- Work towards the development of health technology assessment and priority setting capacity.

e. A dynamic IT industry and ambitions to advance health informatics in the country, but limited concrete steps to tackle the most pressing issues.

9. Many of the essential characteristics of a vital health informatics industry are present in Bulgaria where advancement in the "digital age" can generally be easily seen throughout the country. As in most of the world, though, health applications have lagged considerably from what "could be". Whether some resurgence of efforts will lead to a new wave of improvements of computerization of the health sector is not completely clear. The opportunity does exist however, given Bulgaria's geography and membership in the EU, to advance rapidly in this area and perhaps even become a model for other rapidly advancing

economies. So the outlook and prognosis for Bulgaria's health management information systems remains guarded and mixed.

Strengths and opportunities:

- A small number of competent and active vendors has led to de facto standard-setting and therefore provided some reasonable means of interoperability and interconnection between providers and the NHIF, as well as between providers and the MoH.
- As a member of EU, Bulgaria can actively participate in EU-related activities and innovations, and has benefited from the standardization which has been promoted by EU-Health.
- Bulgaria has considerable capacity and experience in software development and large-scale systems administration.

Weaknesses and threats:

- the current system at NHIF (called "IIS"), after several years of lack of maintenance support (due to contractual issues), has reached a point at which many financial- and planning-related functions must be done manually, circumventing the system altogether. This situation can become only worse.
- Existing systems lack the flexibility to provide the NHIF with information that is core to modern risk management including comprehensive information on the enrolled population, health status, utilization and more importantly the capacity to analyze them.
- The NHIF information system is not well prepared to accommodate significant changes in either functionality or transaction volumes which reforms might precipitate.
- MoH's leadership in shaping the e-health agenda has not been decisive enough and efforts to engage stakeholders in discussions about policies and strategies appear limited.

Possible priority areas for reform:

- Find a solution to NHIF information system problem.
- Launch the Requirements Phase to define a new Health Insurance Information System for NHIF.
- Develop and implement consistently a carefully phased e-health strategy – taking into account budget constraints and priority business needs.
- Convene an advisory panel, with national and international experts to discuss future systems development, at both providers and payer, to provide continuous input regarding systems design and systems administration which draws on both domestic and international capacities.

10. In conclusion to this draft report, focused on the health financing diagnostic the following table captures how activities planned for the next phase of the work will help advance the above agenda. The darker shade indicates a direct relation to the reform target, the lighter shade, an indirect one. For instance, the recommendations of the pharmaceutical report may also help reduce out-of-pocket payments and thus relate to financial protection.

Reform target → Planned activity ↓	Service delivery organization and incentives	Management of macro-fiscal pressure	Financial protection	Pharmaceuticals	IT systems for health
Review of policy options based on international evidence					
Analysis of the health financing aspects of currently envisaged reforms					
DRG implementation action plan: using CCPs and DRGs dynamically					
Pharmaceutical report assessing potential for improving for money in the system and provide recommendations					
Assessment of the emergency health services system, with a focus on financing					
Review of roadmap for E-health development					
Finalization and transfer of the actuarial model					

Background Paper: International comparisons

This background analysis should be read as a document independent from the main report. The key findings are summarized and incorporated in the core of the report, and illustrated by selected graphs

1. Summary analysis of health outcomes, inputs, and expenditures

Health inputs

1. Relative to other comparable income and health spending countries, Bulgaria has more physicians per capita. Bulgaria's physician to population ratio increased from 2.5 in 1980 to 3.8 physicians per 1000 population in 2011.126 The physician to population ratio is comparable to the EU-12 average of 3.8 physicians per 1000 population in 2012 but is higher than the EU-15 average of 3.1 physicians per 1000 population in 2012 (Figure 63). As shown in Figure 62, however, Bulgaria's physician to population ratio is higher than other comparable income and health spending countries and actually higher than the EU averages holding income and health spending constant.

Figure 63: Physicians per 1000 population: Bulgaria and comparators; 1980-2012

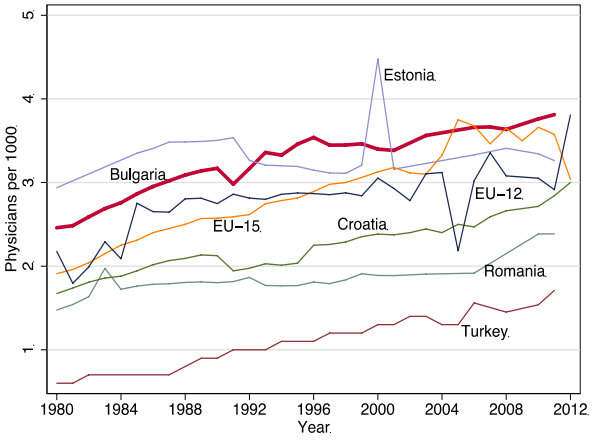
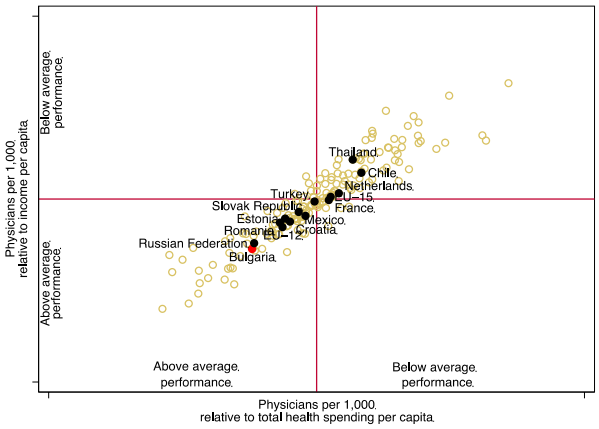


Figure 62: Physician Population Ratio Relative to Total Health Spending and Income*



Source: World Development Indicators & WHO, 2014.
** Physicians and GDP per capita data are for latest/earliest available year.*

2. With respect to hospital beds, Bulgaria's hospital beds have decreased from 8.9 in 1980 to 6.4 beds per 1000 population in 2011 (latest year for which data are available). The number of hospital beds per capita, however, steadily increased between 1980 until 1996, reaching a peak of 10.5 beds per capita in 1996. Currently, the hospital beds to population ratio is similar to the EU-15 average of 6.5 beds per 1000 population but is higher than the EU-12 average of 4.8 beds per capita (Figure 64). As shown in Figure 65, however, Bulgaria's hospital bed to population ratio is significantly above the global averages for

[126] Data are not available for 2012.

comparable income and health spending countries and is well above the EU averages holding income and health spending constant.

Figure 64: Hospital beds per 1000 population: Bulgaria and comparators; 1980-2012

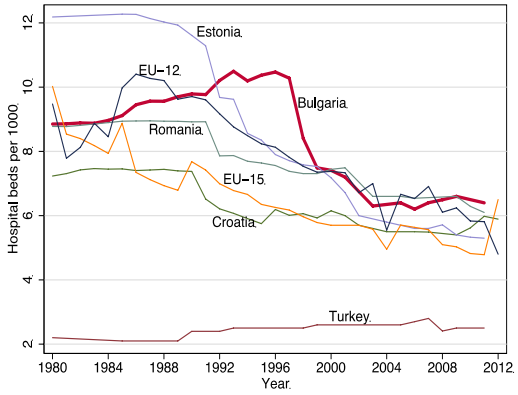
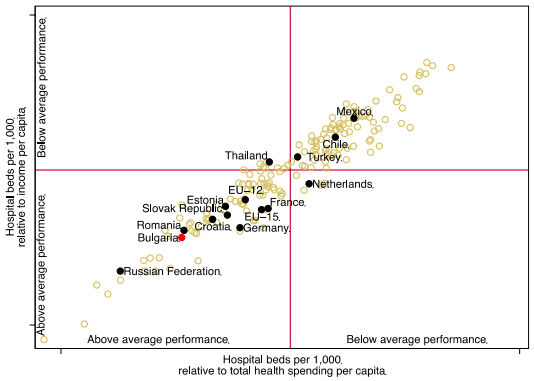


Figure 65: Hospital Beds to Population Ratio Relative to Total Health Spending and Income*



Source: World Development Indicators and WHO NHA, 2014
**Beds and GDP per capita data are for the latest/earliest available year.*

Health Outcomes

3. Bulgaria has achieved significant improvements in health outcomes over time but is still falling behind most EU countries on key health indicators. Infant mortality decreased from 24.5 in 1980 to 10.5 per 1,000 live births in 2012 (Figure 67). Infant mortality in Bulgaria is slightly lower relative to other comparable income and health spending countries. Despite the significant reduction, however, Bulgaria's infant mortality rate is still more than three times higher than the EU-15 average of 3.2 infant deaths per 1000 live births and almost twice as high as the EU-12 average of 5.5 infant deaths per 1000 live births. More significant improvements were achieved in reducing maternal mortality, which fell from 24 deaths per 100,000 live births in 1990 to 8 deaths per 100,000 live births in 2010. The maternal mortality ratio in Bulgaria is low compared to the global averages relative to income and health spending. Bulgaria has surpassed the EU-12 average of 11.3 deaths per 100,000 live births and is approaching the EU-15 average of 7.6 deaths per 100,000 live births (Figure 66).

Figure 67: Infant mortality rate per 1,000 live births: Bulgaria and comparators; 1980-2012

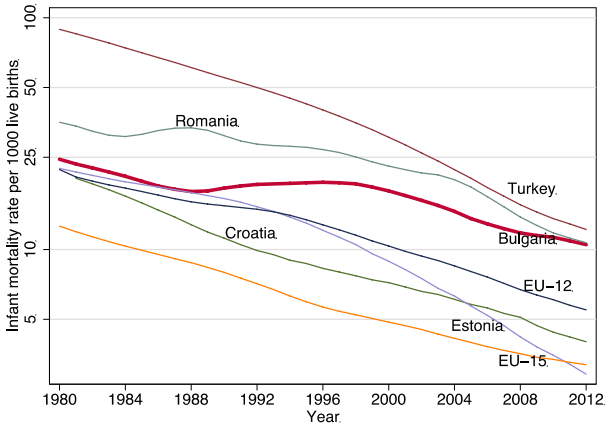
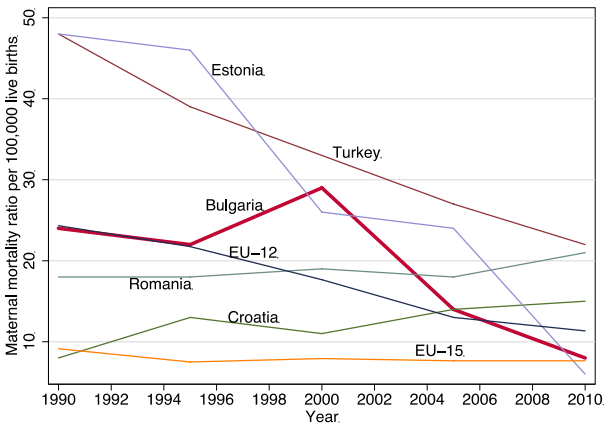


Figure 66:Maternal mortality ratio per 100,000 live births: Bulgaria and comparators; 1990-2010



4. Moderate improvements have been achieved in terms of life expectancy. Life expectancy has increased from 71.2 years in 1980 to 74.3 years in 2012. Most of the improvements in life expectancy were achieved after 2000, as life expectancy remained below 71.7 years until 2000. Bulgaria's life expectancy, however, is still significantly lower than the EU-15 average of 81.2 years in 2012 but is similar to the life expectancy in Turkey (74.9 years) and Romania (74.6 years) (Figure 69). In 2012, life expectancy in Bulgaria was above average compared to other similar income and health spending countries (Figure 68). Holding income and health spending constant, Bulgaria does better than comparators, including the EU averages, on all three measures.

Figure 69: Life expectancy: Bulgaria and comparators; 1980-2012

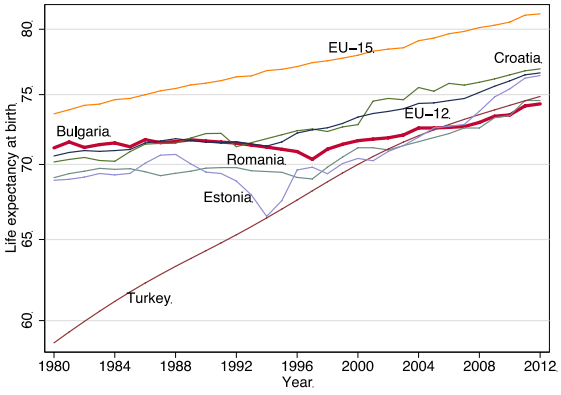
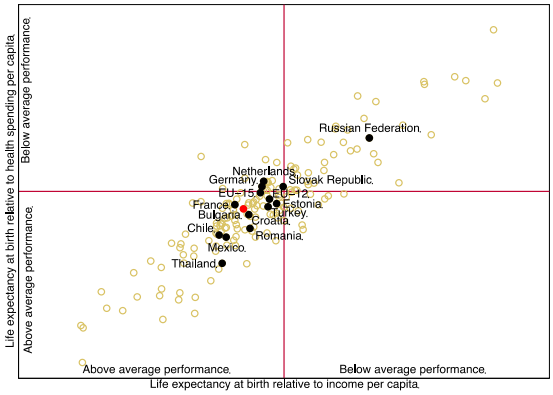


Figure 68: Global Comparisons of Life Expectancy Relative to Income and Spending, 2012

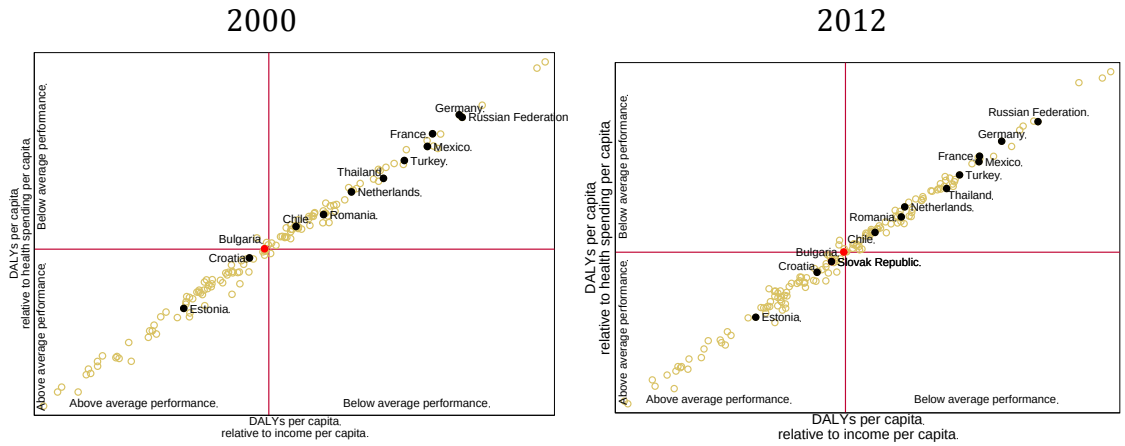


Source: World Development Indicators & WHO, 2014

5. Figure 70 below shows how well Bulgaria performs in terms of postponing premature death and limiting disability for its income and health spending levels. The relative position of Bulgaria has not changed since 2000, and, in 2012, it performs about average on this measure of health outcomes. While attributing such performance to specific policies or socioeconomic/cultural/institutional factors is not

possible, it appears that Bulgaria's overall health status performance as measured by DALYs is about average compared to countries with similar levels of income and health spending.

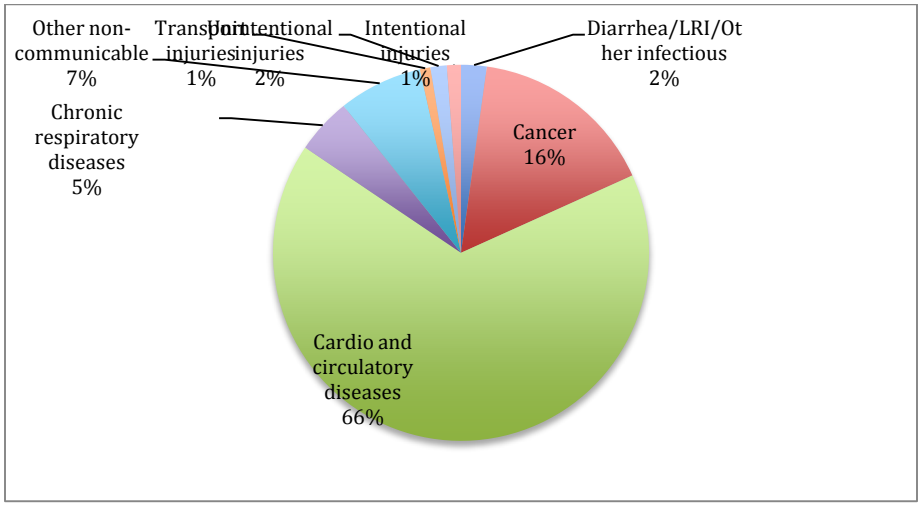
Figure 70: DALYs per capita relative to income and spending, 2000 and 2012



Source: World Development Indicators, WHO NHA, and WHO Global Health Estimates, 2014

6. Bulgaria has undergone an epidemiological transition. Although infant mortality is still relatively high, non-communicable diseases represent the largest share of the disease burden. According to the most recent Global Burden of Disease Study conducted by the Institute for Health Metrics and Evaluation, in 2010 almost 94 percent of deaths were caused by non-communicable diseases. Cardio and circulatory diseases were the leadings cause of death (66 percent of deaths). Injuries (transport, intentional, and unintentional) caused 3.5 percent of deaths, while 2.2 percent of deaths were attributed to diarrhea, LRI, or other infectious diseases (Figure 71).

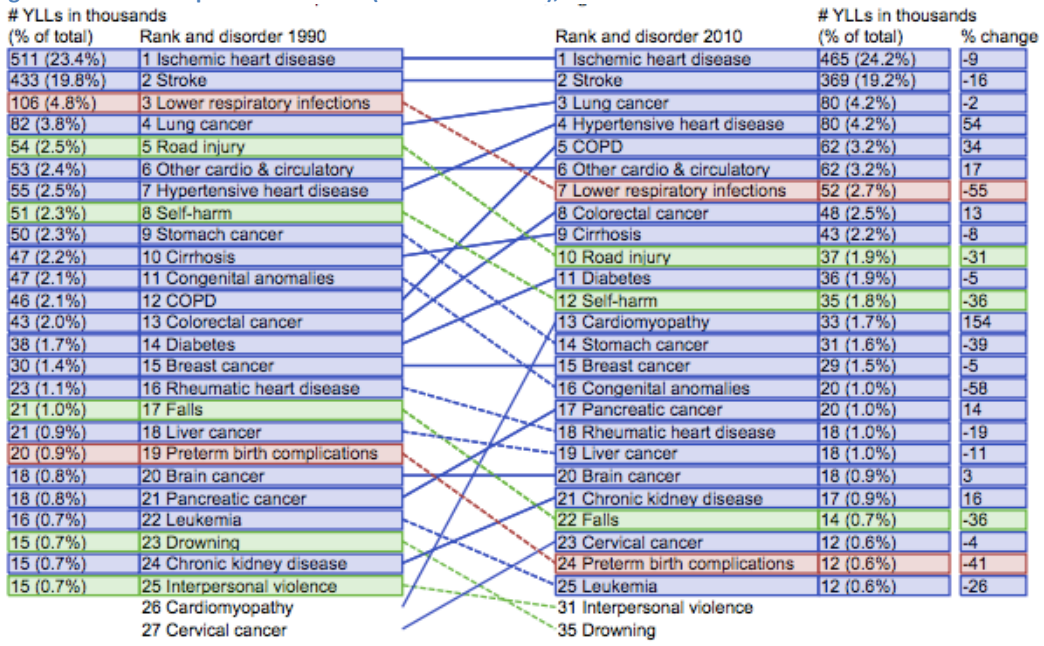
Figure 71: Causes of death, Bulgaria, 2010



Source: IHME Global Burden of Disease (2014)

7. The two main causes of premature death in Bulgaria are ischemic heart disease and stroke, with 24.2 and 19.2 percent of years of life lost (YLLs) being attributed to the respective causes. Compared to 1990, a significantly larger share of YLLs is now attributed to other non-communicable diseases, such as hypertensive heart disease and COPD. A smaller share of YLLs in 2010 is attributed to injuries as compared to 1990 (Figure 72).

Figure 72: Causes of premature death (Years of Life Lost), 1990 and 2010

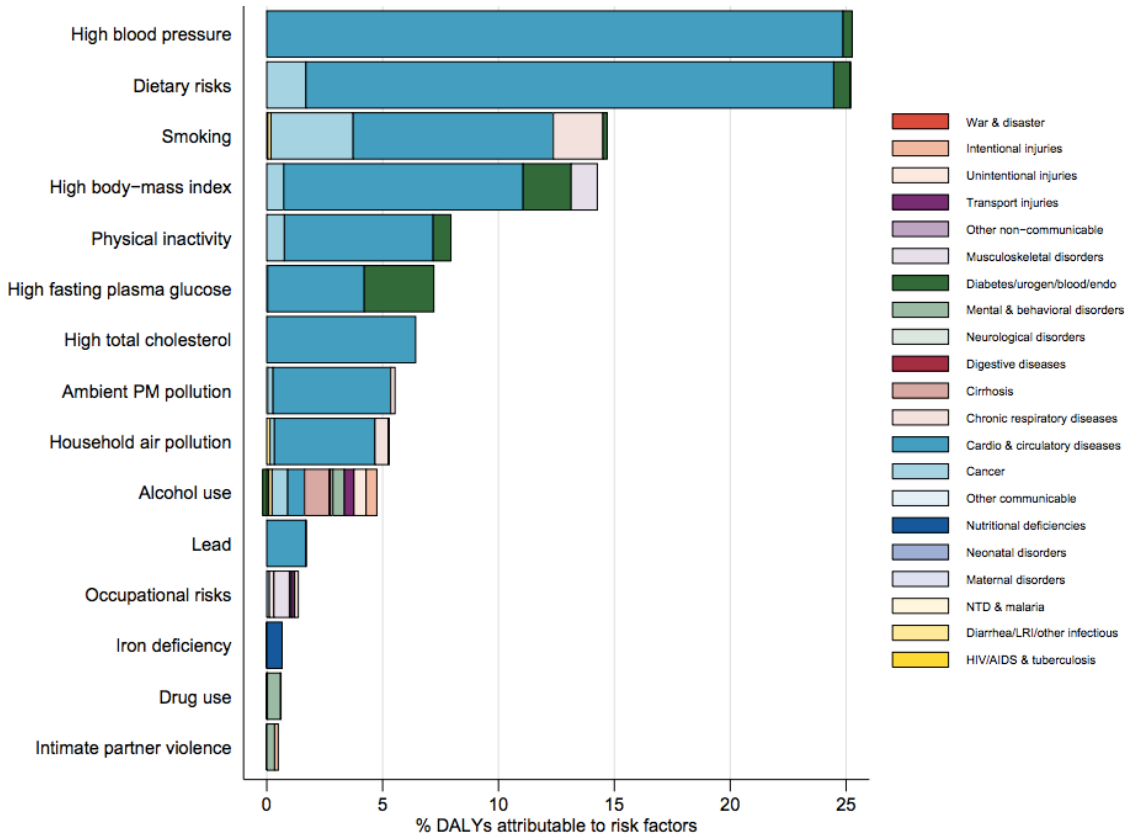


Source: IHME Global Burden of Disease (2014)

8. Cardio and circulatory diseases also represent the largest share of DALYs. In Bulgaria, almost 37 percent of DALYs can be attributed to cardio and circulatory diseases. This is the highest share among the EU-28 countries. Other main causes of DALYs include cancer (13 percent), musculoskeletal disorders (9.8 percent), injuries (8.3 percent) and mental and behavioral disorders (IHME GBD, 2014).

9. The majority of DALYs can be attributed to high blood pressure, dietary risks, smoking, and high body mass index (Figure 73). Latest available data indicate that in 2008, 41 percent of the adult population (over the age of 25) in Bulgaria suffered from raised blood pressure (SBP ≥ 140 or DBP ≥ 90) (WHO Global Health Observatory, 2014).

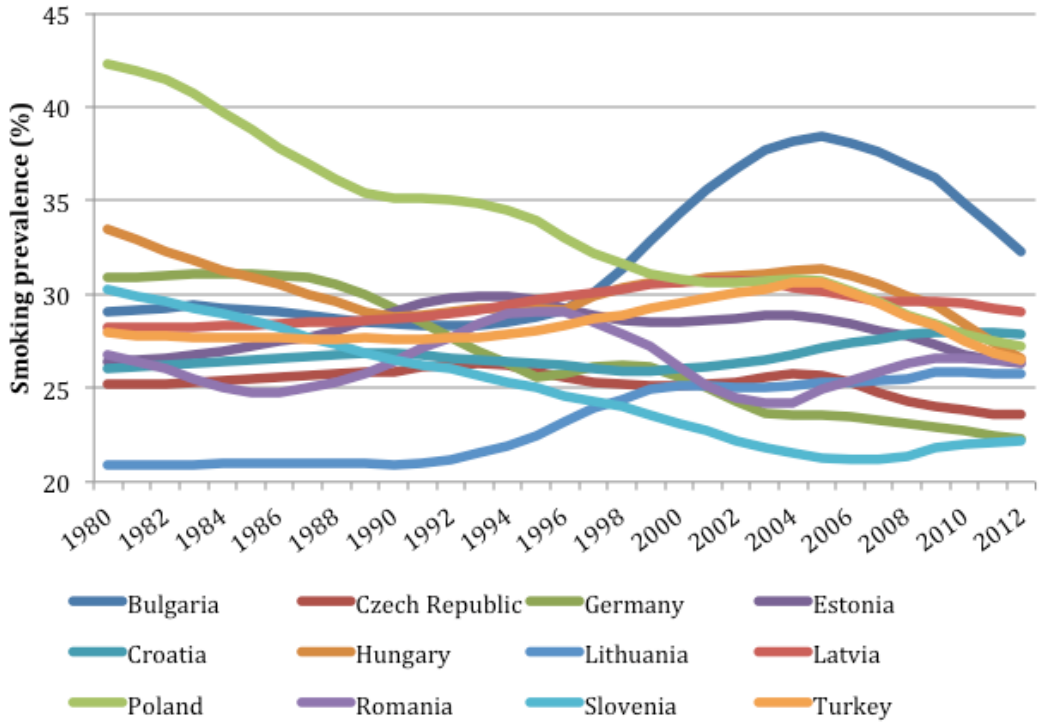
Figure 73: Burden of disease attributable to 15 leading risk factors in 2010, expressed as a percentage of Bulgaria DALYs



Source: IHME Global Burden of Disease (2014)

10. Smoking, a key risk factor for the described burden of cardiovascular diseases and cancer, continues to be widespread in Bulgaria. Over 32 percent of individuals aged 15 years and over are daily smokers. This is the highest prevalence among EU countries after Greece (38.3 percent). The prevalence of daily smoking reached a peak in 2005, when 38.4 percent of individuals aged 15 or over were daily smokers (Figure 74). Recently, Bulgaria has taken several steps to curb smoking rates. In 2010, tobacco tax rates were increased sharply, and bans on public smoking were implemented in 2012.

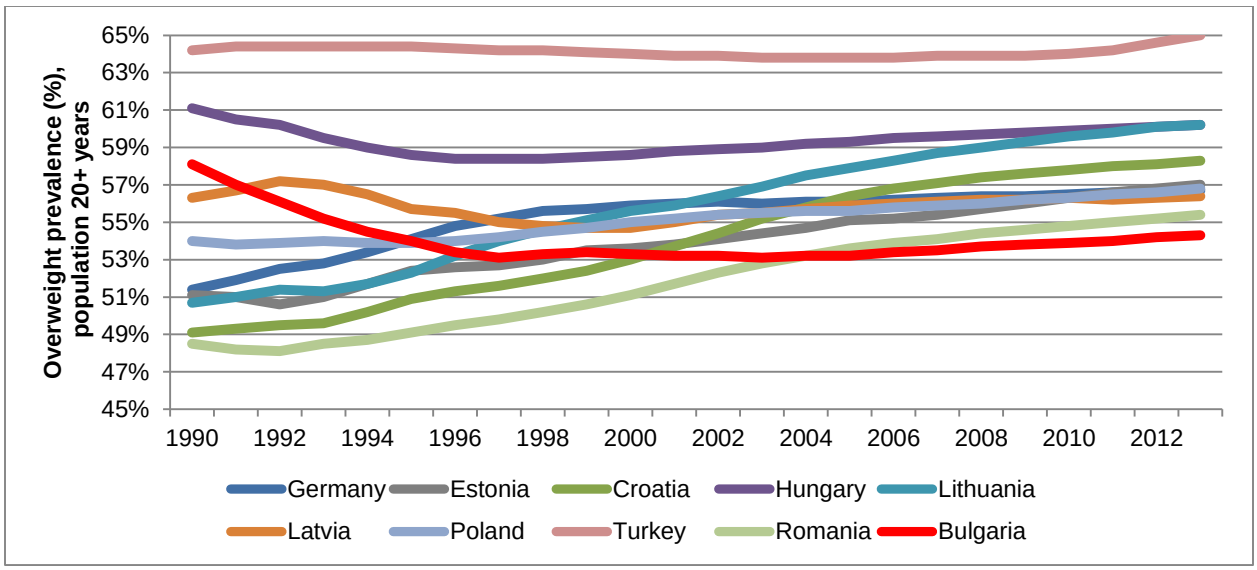
Figure 74: Adult population above the age of 15 smoking daily, 1980-2012



Source: IHME GBD 2014

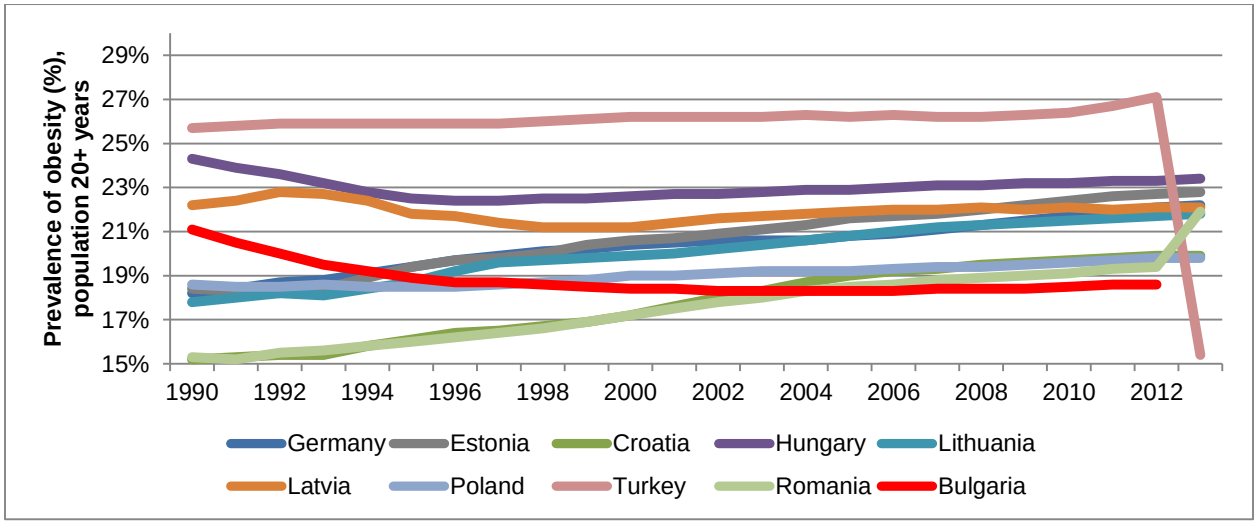
11. The prevalence of overweight and obesity in Bulgaria is lower than in other comparable countries. Unlike in most other comparator countries, in Bulgaria the share of individuals 20 years or older being overweight has decreased since 1990. The prevalence is now among the lowest, with 54 percent of individuals above the age of 20 being overweight. This is similar to the prevalence in Romania (55 percent), Latvia (55 percent), and Poland (57 percent). The share is significantly higher in Turkey, where 65 percent of adults above the age of 20 are overweight (Figure 75). Similarly, the prevalence of obesity has fallen slightly from 21 percent in 1990 to 18.6 percent in 2012 and is comparable to the obesity prevalence found in Poland (19.8 percent) and Croatia (19.9) (Figure 76).

Figure 75: Overweight prevalence, population 20+ years (%), 1990-2012



Source: IHME GBD 2014

Figure 76: Prevalence of obesity, population 20+years (%), 1990-2012



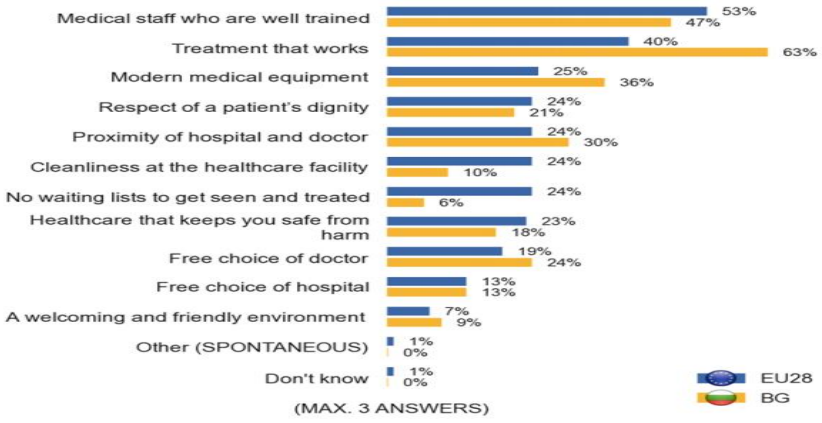
Source: IHME GBD 2014

Perceptions about the health system

12. Patient satisfaction remains low. In 2013, only 29 percent rated the overall quality of health care as 'good' compared to the EU-28 average of 71 percent. This was the third lowest rate in the EU after Romania (25 percent) and Greece (26 percent) (Eurobarometer, 2014). Seventy-two percent of respondents believed that the quality of healthcare in Bulgaria was worse compared to other EU member states. When asked to list the most important criteria for high quality health care, Bulgarians chose 'treatment that works' (63 percent), medical staff who are well trained (47 percent), and modern medical equipment (36 percent) (Figure 77) (Eurobarometer, 2014). Corruption could also factor in the dissatisfaction, as 78 percent of respondents in the 2013 Global Barometer Survey conducted by

Transparency International felt that medical and health services were corrupt or extremely corrupt (Transparency International, 2014).[127]It is important to note, however, that Bulgaria appears to have made some improvements in terms of the quality of care offered. According to the 2013 EuroHealth Consumer Index,[128] Bulgaria ranked 30th out of 35 European health care systems, moving up 3 spots since 2012. Bulgaria measured particularly poorly on health outcomes and range of reach and services provided.[129]

Figure 77: Most important criteria when you think of high quality healthcare, % of respondents



Source: Eurobarometer (2014).
Notes: Respondents were asked the following question: "Of the following criteria, which are the three most important criteria when you think of high quality healthcare in (OUR COUNTRY)?" Respondents could choose up to three criteria.

Health financing

13. Despite significant increases in health spending between 1995 and 2012, per capita health spending in Bulgaria is still below EU averages. Both total and per capita health spending increased significantly in Bulgaria between 1995 and 2012. Per capita health spending increased from 82 in US dollars and 295 in international dollars (PPP) in 1995 to 566 US dollars and 1139 PPP, respectively, in 2012. Per capita health spending, however, is still significantly lower than the EU-12 and EU-15 averages of 1160 and 4379 US dollars per capita, respectively, in 2012.

14. The composition of health spending has changed remarkably during the same time period. In 2012, the public share of total health spending represented 51.4 percent compared to almost 74 percent in

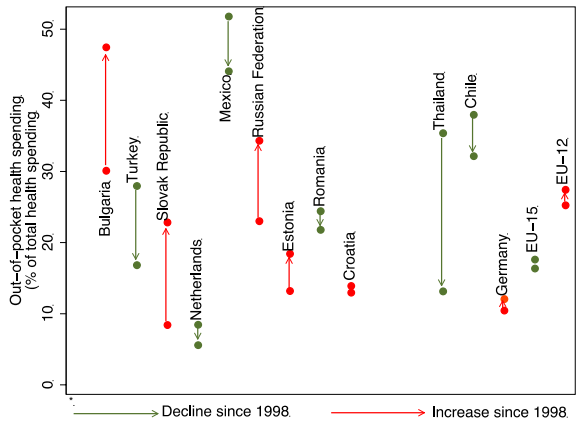
[127]The share was higher only in the judiciary – 86 percent of respondents believed that the judiciary was corrupt or extremely corrupt. Only 7 percent, however, reported paying a bribe to the medical and health services in the last 12 months (Transparency International, 2014).
[128] The EuroHealth Consumer Index was established in 2005 and ranks health care systems on 48 indicators, covering six areas that are essential to the health consumer: patients' rights and information, accessibility of treatment (waiting times), medical outcomes, range and reach of services provided, pharmaceuticals, and prevention.
[129] Range of reach and services provided included equity of healthcare systems, cataract operations per 100,000 age 65+, kidney transplants per million population, inclusion of dental care in public healthcare, informal payments to doctors, long-term care for the elderly, and share of dialysis done outside of clinic.

1995. As a result, private health spending increased from 26 percent in 1995 to 48.6 percent in 2012, with the OOP share rising from 26 percent to 47.5 percent, respectively.

- ✓ In 2012, total health spending represented 8 percent of GDP up from 5.2 percent in 1995. In terms of global comparisons in 2012, total health spending as a share of GDP and in per capita terms, is above average relative to countries with similar levels of income.
- ✓ Public spending on health as a share of total health spending is below average but slightly above average when measured as a share of GDP (4.1 percent). When measured in per capita terms (in both exchange rates and international dollars), public health spending is about average relative to other comparable income countries.
- ✓ A different picture emerges in regards to private health spending. Private spending as a share of total health spending (48.6), as a share of GDP (3.9 percent) and in per capita exchange rate ($275) and international dollar terms ($553) for 2012 is significantly above global averages.

15. High out-of-pocket payments limit the financial risk protection provided by the system. Out-of-pocket payments account for almost 98 percent of all private health spending. As a share of total health spending (48 percent), as a share of GDP (3.8 percent), and in per capita terms ($268 in exchange rates and $540 in PPP), OOP is significantly above global averages. Bulgaria thus does not meet the WHO criterion of financial protection, as OOP is significantly higher than the WHO threshold of 15-20 percent as a share of total health spending. It is important to note that OOP has increased by more than 20 percentage points from 1998 until 2012 (Figure 78).

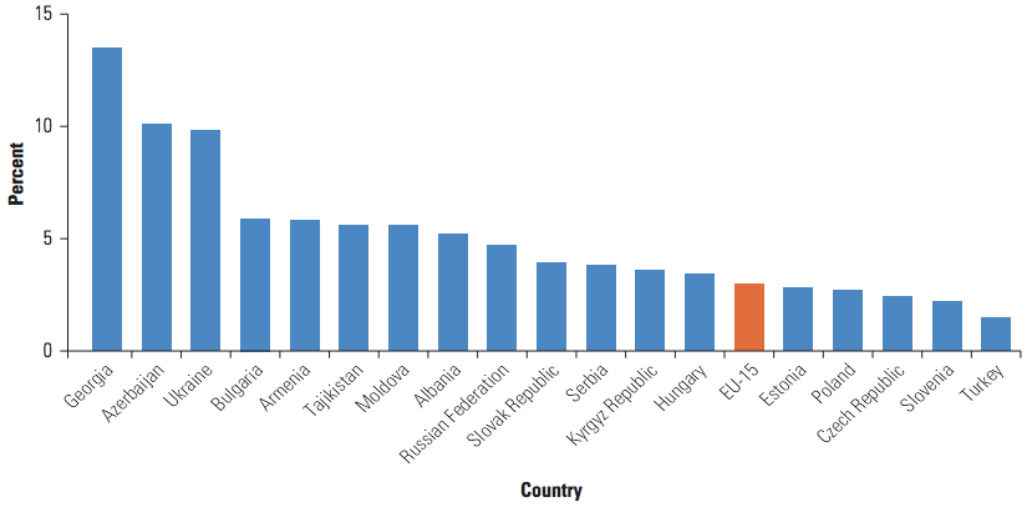
Figure 78: Changes in out-of-pocket share (1998-2012)



Source: World Development Indicators & WHO (2014)

16. OOP payments represent more than 6 percent of total household spending – almost double the ratio found in EU-15 countries (Figure 79). In 2012, more than 14 percent of respondents in the bottom income quintile indicated that they did not seek health care because it was too expensive. Although the indicator more than halved since 2006, Bulgaria lags behind most other EU countries. The EU average was 4.5 percent in 2012, and the indicator was below 3 percent in Estonia, Germany, Lithuania and Czech Republic (Figure 80).

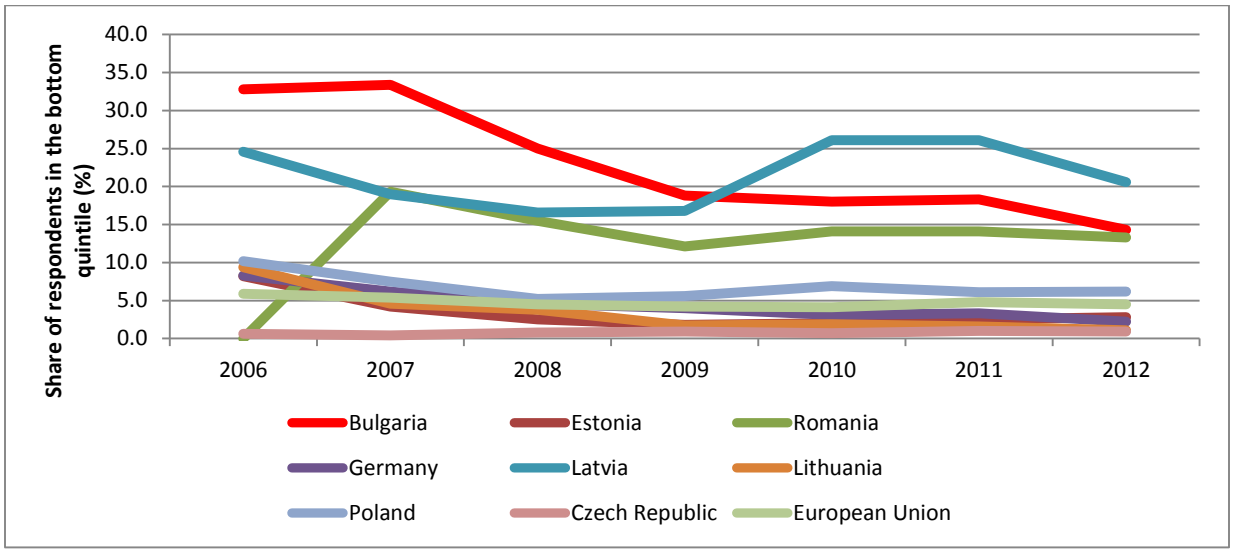
Figure 79: Out-of-pocket payments on health as a percentage of total household spending*



*Latest available year

Source: Smith and Nguyen (2013)

Figure 80: Share of respondents in the bottom quintile indicating that they did not seek care because it was too expensive



Source: Eurostat (2014)

17. Despite the introduction of copayments in 2000, there is evidence that patients continue to incur informal payments. Using results from a nationally representative survey conducted in 2010, Atanasova et al. (2014) find that 13 percent of patients reported informal payments for outpatient visits and 33 percent of patients reported to have paid informally for inpatient care.

2. Detailed analysis of health outcomes, inputs, and expenditures

18. In this document, we present the analysis of Bulgaria's performance on health system indicators. First, we analyze trends in health outcomes and inputs over the period 1980-2012 and trends in health financing over the period 1995-2012, comparing these trends to the EU-12 and EU-15 averages, as well as to the trends in Croatia, Estonia, Romania, and Turkey. Second, we benchmark Bulgaria's performance for the latest year available (generally 2012) against comparable income and health spending countries.

2.1. Health outcome, input, and expenditure trends over time

19. While Bulgaria has seen significant improvements in key health outcomes between 1980-2012, the pace at which these improvements have occurred has been slower than in other EU countries. The infant mortality decreased from 24.5 in 1980 to 10.5 per 1,000 live births in 2012. Despite the significant reduction, however, Bulgaria's infant mortality rate is still more than three times higher than the EU-15 average of 3.2 infant deaths per 1000 live births and almost twice as high as the EU-12 average of 5.5 infant deaths per 1000 live births (Figure 81).Similar progress has been achieved in reducing maternal mortality, which fell from 24 in 1990 to 8 deaths per 100,000 live births in 2010. Bulgaria has surpassed the EU-12 average of 11.3 deaths per 100,000 live births and is approaching the EU-15 average of 7.6 deaths per 100,000 live births (Figure 80)

Figure 81: Infant mortality rate per 1,000 live births: Bulgaria and comparators; 1980-2012

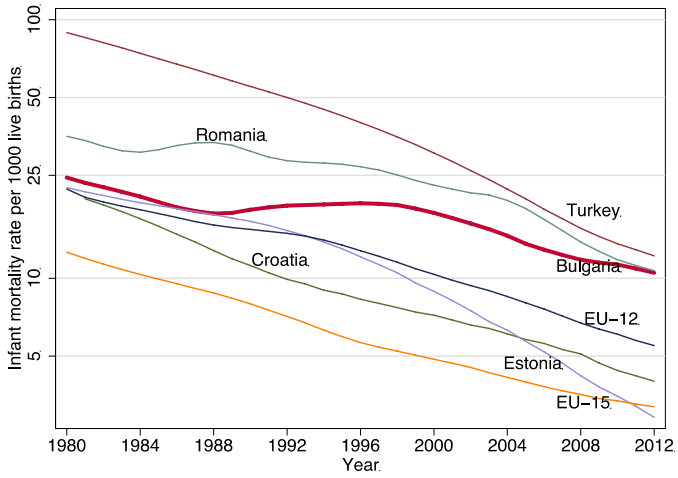
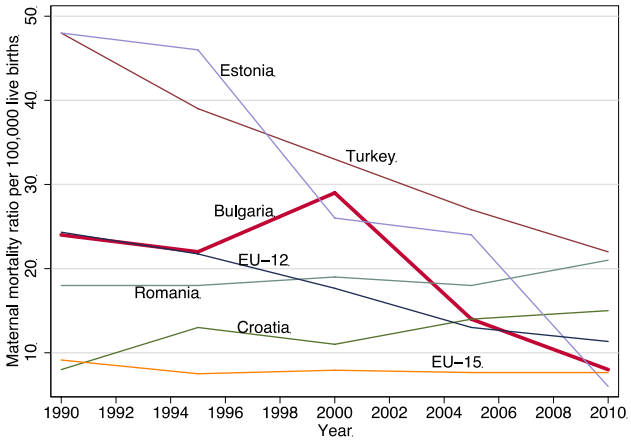
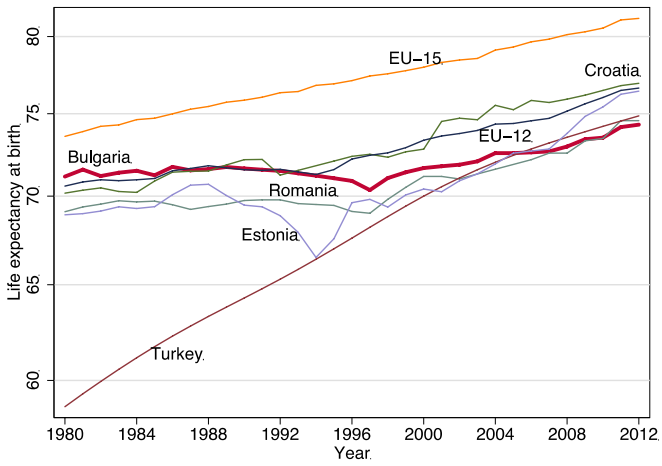


Figure 82: Maternal mortality ratio per 100,000 live births: Bulgaria and comparators; 1990-2010



20. Moderate improvements have been achieved in terms of life expectancy. Life expectancy has increased from 71.2 years in 1980 to 74.3 years in 2012. Most of the improvements in life expectancy were achieved after 2000, as life expectancy remained below 71.7 years until 2000. Bulgaria's life expectancy, however, is still significantly lower than the EU-15 average of 81.2 years in 2012 but is similar to the life expectancies in Turkey (74.9 years) and Romania (74.6 years) (Figure 83).

Figure 83: Life expectancy: Bulgaria and comparators; 1980-2012



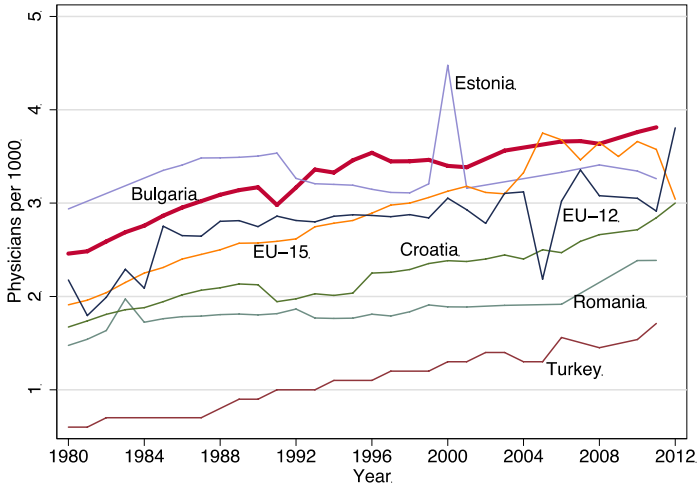
Source: World Development Indicators & WHO, 2014

21. The number of physicians per capita has increased from 2.5 in 1980 to 3.8 physicians per 1000 population in 2011.[130] The physician to population ratio is comparable to the EU-12 average of 3.8 physicians per 1000 population in 2012 but is higher than the EU-15 average of 3.1 physicians per 1000 population in 2012 (Figure 84). Meanwhile, the number of hospital beds per 1000

[130] Data are not available for 2012.

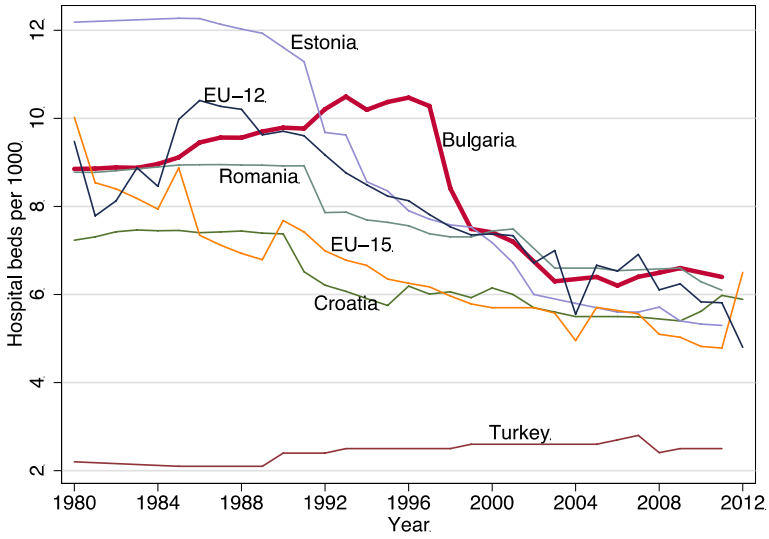
population has decreased from 8.9 in 1980 to 6.4 beds per 1000 population in 2011 (latest year for which data are available). The number of hospital beds per capita, however, steadily increased between 1980 until 1996, reaching a peak of 10.5 beds per capita in 1996. Currently, the hospital beds to population ratio is similar to the EU-15 average of 6.5 beds per 1000 population but is higher than the EU-12 average of 4.8 beds per capita (Figure 85).

Figure 84: Physicians per 1000 population: Bulgaria and comparators; 1980-2012



Source: World Development Indicators and WHO NHA, 2014

Figure 85: Hospital beds per 1000 population: Bulgaria and comparators; 1980-2012

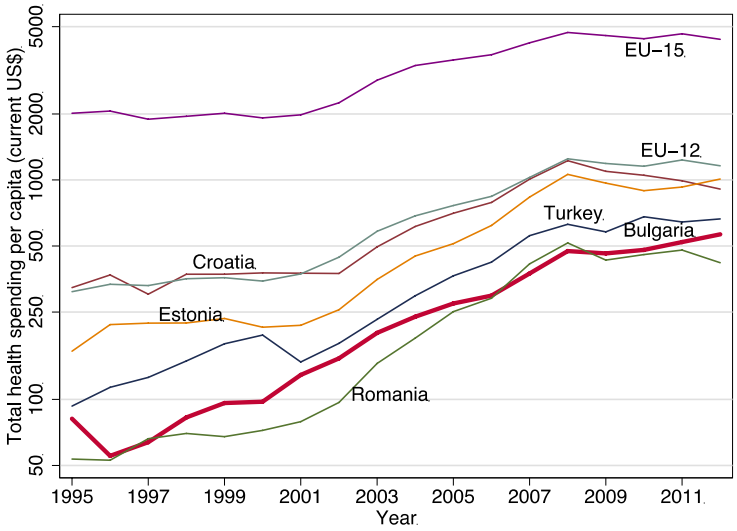


Source: World Development Indicators and WHO NHA, 2014

22. Both total and per capita health spending increased significantly in Bulgaria between 1995 and 2012. Total health spending as a share of GDP increased from 5.2 percent in 1995 to 8 percent in 2012, while

per capita health spending increased from 82 in US dollars and 295 in international dollars (PPP) in 1995 to 566 US dollars and 1139 PPP, respectively, in 2012. Per capita health spending, however, is still significantly lower than the EU-12 and EU-15 averages of 1160 and 4379 US dollars per capita, respectively, in 2012 (Figure 86).

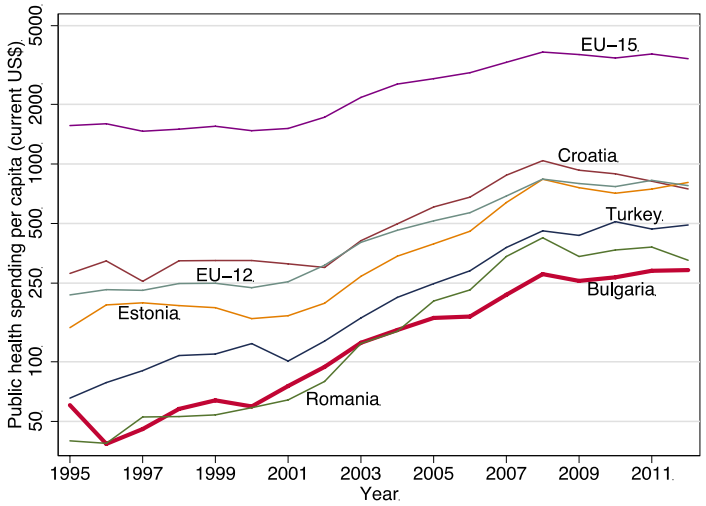
Figure 86: Total health spending per capita (current US$): Bulgaria and comparators; 1995-201



Source: World Development Indicators and WHO NHA, 2014

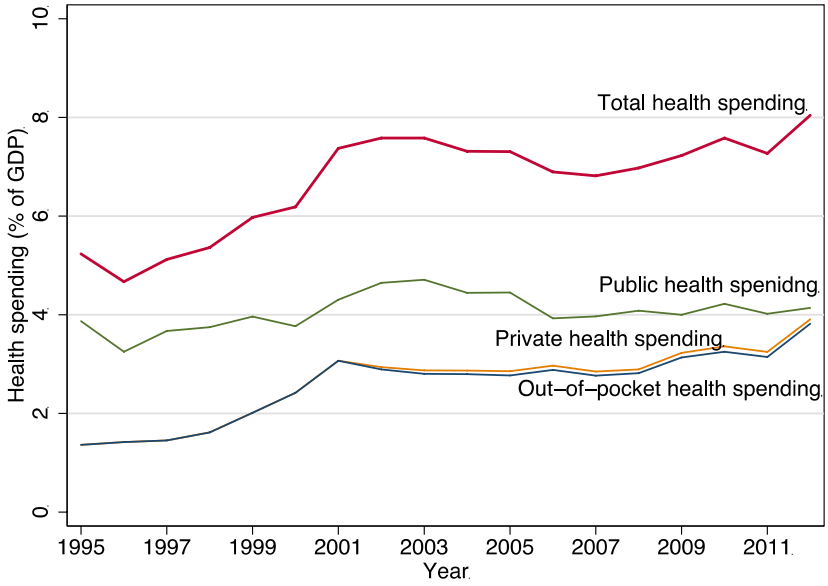
23. Public health spending per capita in Bulgaria has also increased from 60 US dollars in 1995 to 291 US dollars in 2012, but is still significantly lower than the EU-12 and EU-15 averages of 777 US dollars and 3404 US dollars, respectively, in 2012 (Figure 87). As a share of GDP, public health spending increased from 3.9 percent in 1995 to 4.1 percent in 2012, while private health spending increased from 1.4 percent to 3.9 percent, respectively (Figure 88).

Figure 87: Public health spending per capita (current US$): Bulgaria and comparators; 1995-2012



Source: World Development Indicators and WHO NHA, 2014

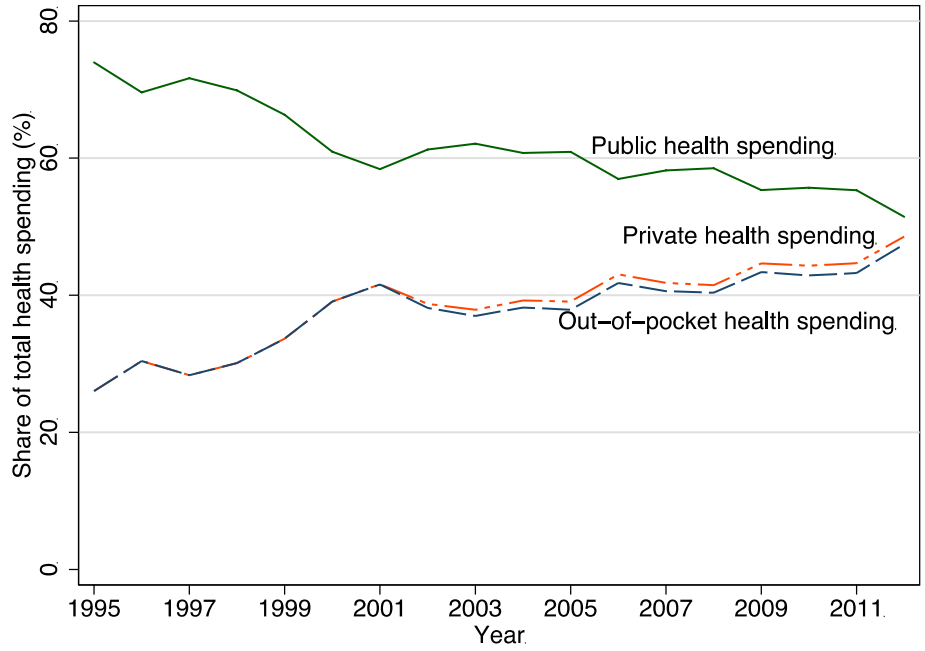
Figure 88: Health spending as a share of GDP, Bulgaria, 1995-2012



Source: World Development Indicators and WHO NHA, 2014

24. The composition of health spending has changed during the same time period. In 2012, the public share of total health spending represented 51.4 percent compared to almost 74 percent in 1995. As a result, private health spending increased from 26 percent in 1995 to 48.6 percent in 2012, with the OOP share rising from 26 percent to 47.5 percent, respectively.

Figure 89: Public, private, and out-of-pocket health spending as a share of total health spending, Bulgaria, 1995-2012



Source: World Development Indicators and WHO NHA, 2014

25. Figure 90-Figure 96 display trends in health financing for Bulgaria and comparator countries over the period 1995-2012. As a share of GDP, total spending is similar to the EU-12 average, while public health spending is lower than the EU-12 average. Private and out-of-pocket health spending, as shares of GDP, are significantly higher than those observed in the comparator countries. The same is true when private and OOP spending are measured as shares of total health spending. Public health spending, as a share of total health spending, on the other hand is significantly lower than in other comparable countries.

Figure 90: Total health spending as a share of GDP: Bulgaria and comparators; 1995-2012

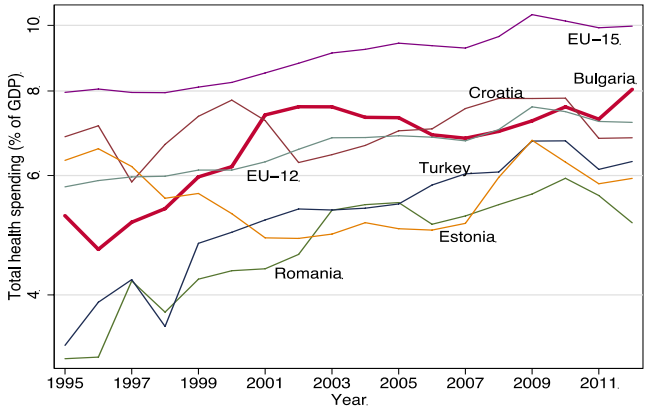


Figure 91: Public health spending as a share of GDP: Bulgaria and comparators; 1995-2012

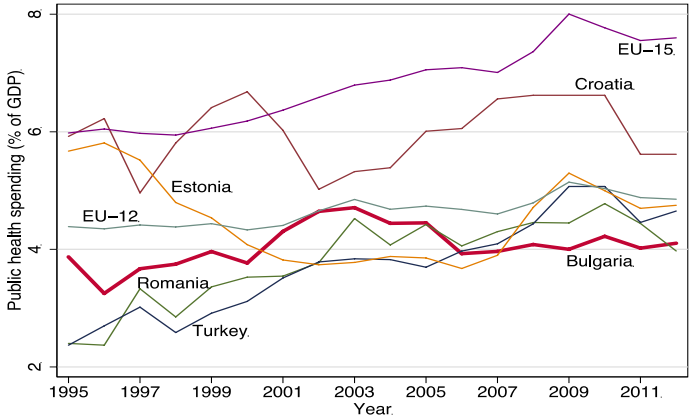


Figure 92: Private health spending as a share of GDP: Bulgaria and comparators; 1995-2012

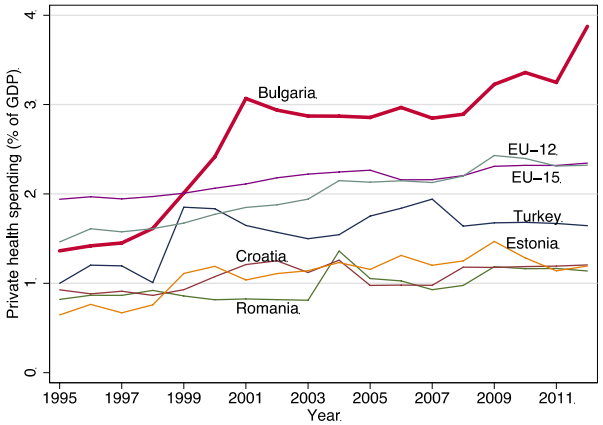


Figure 93: Out-of-pocket health spending as a share of GDP: Bulgaria and comparators; 1995-2012

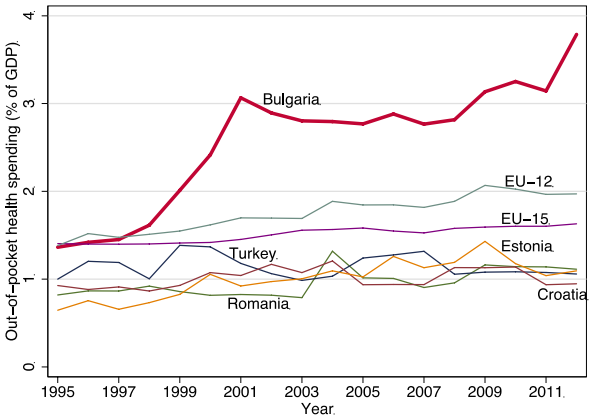


Figure 94: Public health spending as a share of total health spending: Bulgaria and comparators, 1995-2012

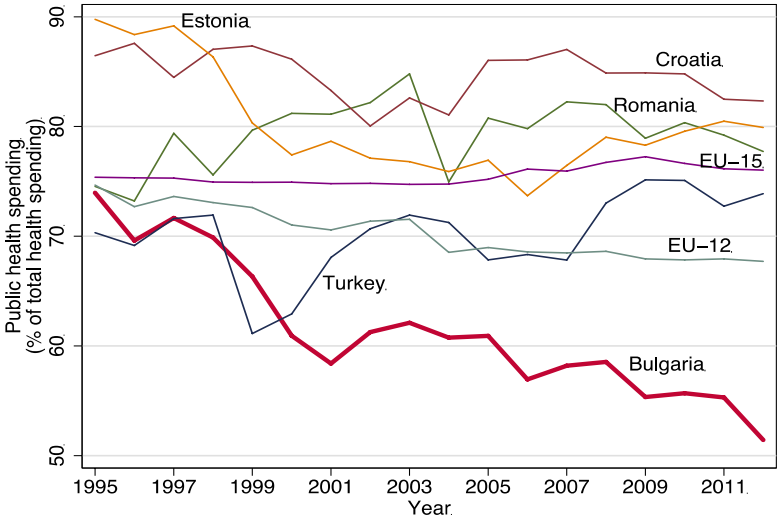


Figure 95: Private health spending as a share of total health spending: Bulgaria and comparators, 1995-2012

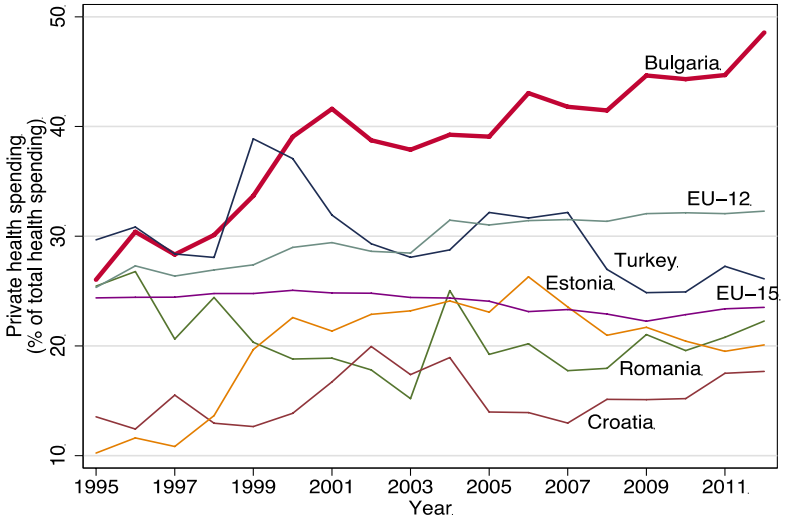
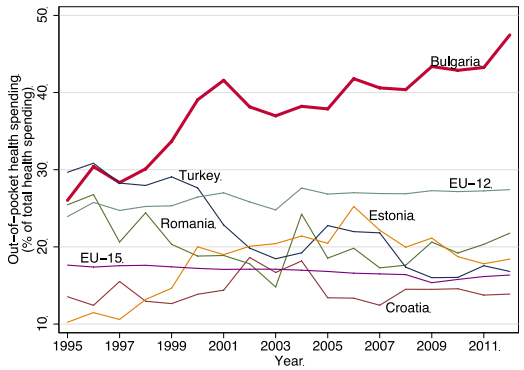


Figure 96: Out-of-pocket health spending as a share of total health spending: Bulgaria and comparators; 1995-2012



26. Table 26 displays the nominal elasticities of total, public, and private health spending with respect to GDP for 1995-2012, as well as for the 1999-2012 and 2005-2012 sub-periods. In terms of the relationship between nominal health spending and nominal GDP growth, total health spending over the full 1995-2012 period increased 11.2 percent per year more rapidly than GDP (nominal elasticity of 1.112), public spending increased 4.6 percent more rapidly (1.046) and private spending increased 23.2 percent more rapidly (1.232). Between 2005-2012, total health spending increased 13.5 percent more rapidly than GDP (1.135), public health spending grew 7 percent less rapidly than GDP (0.930), and private spending grew at a significantly higher rate of 40.2 percent (1.402).

27. Table 27 displays the nominal elasticities of total government revenues and expenditures relative to GDP, as well as public health spending relative to total government expenditures. Government revenues grew 7.2 percent less rapidly than GDP between 1999-2012 and 23 percent less rapidly between 2005-2012. Meanwhile, government expenditures grew 7.1 percent (elasticity of 0.929) less rapidly between 1999-2012 and 3.1 percent (elasticity of 1.031) per year faster between 2005-2012. Public health spending grew 3.6 percent faster than total government expenditures between 1999-2012 (elasticity of 1.036) but over 10 percent less rapidly between 2005-2012 (elasticity of 0.898).

Table 26: Elasticities of health spending relative to GDP, 1995-2011

	1995-2012	1999-2012	2005-2012
Total Health Spending	1.112	1.100	1.135
Public Health Spending	1.046	0.970	0.930
Private Health Spending	1.232	1.287	1.402

Source: IMF World Economic Outlook and WHO, 2014

Table 27: Elasticities of government revenues and expenditures relative to GDP and public health spending relative to government expenditures, 2000-2012*

	1999-2012	2005-2012
Government revenues relative to GDP	0.928	0.770
Government expenditures relative to GDP	0.929	1.031
Public health spending relative to government expenditures	1.036	0.898

Source: IMF World Economic Outlook and WHO, 2014

*Data on government revenues and expenditures are only available beginning 1999

2.2. Benchmarking Bulgaria's performance against countries with similar levels of income and health spending

Given the lack of appropriate data and methods, it is difficult to perform a rigorous assessment of a health system. For this reason, researchers often rely on global benchmarking of health outcomes, inputs, and health spending to provide an overview of the country's performance relative to countries of

comparable income and health spending levels. A global average does not represent the gold standard, but rather is an easy-to-measure and useful metric for assessing comparative performance. Compared to other income and health spending countries, Bulgaria performs above average on key health outcomes (Figure 97 - Figure 99)

Figure 97: Global Comparisons of Infant Mortality versus Income and Total Health Spending, 2012

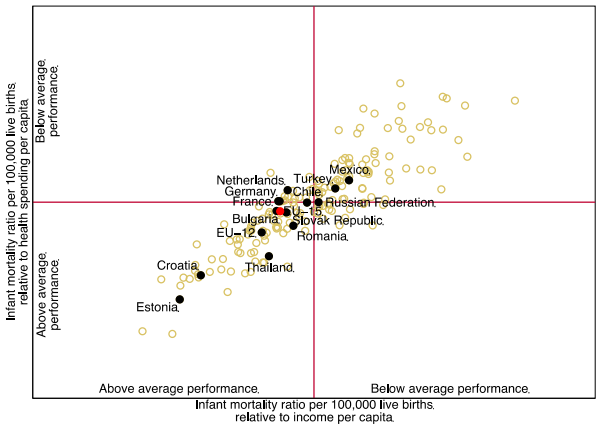


Figure 98: Global Comparisons of Maternal Mortality Relative to Income and Spending, 2010

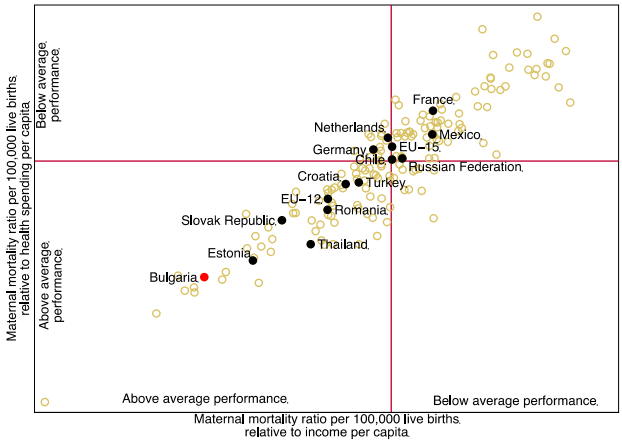
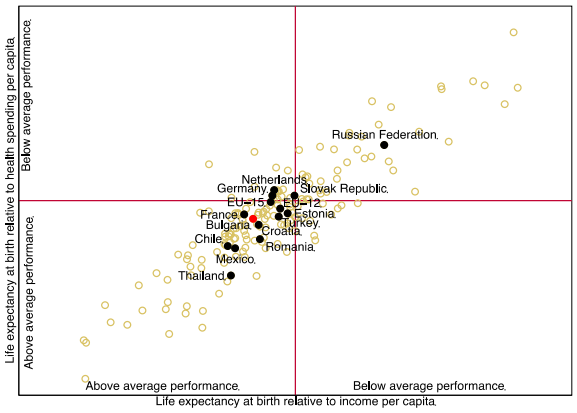


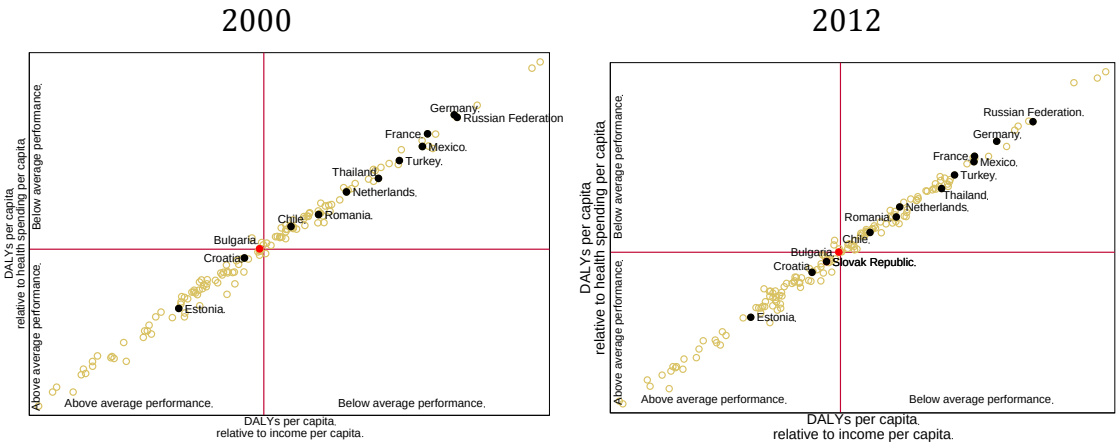
Figure 99: Global Comparisons of Life Expectancy Relative to Income and Spending, 2012



Source: World Development Indicators & WHO, 2014
Note: Both axes log scale.

28. Figure 100 below shows how well Bulgaria performs in terms of postponing premature death and limiting disability for its income and health spending levels. The relative position of Bulgaria has not changed since 2000, and, in 2012, it performs about average on this measure of health outcomes. While attributing such performance to specific policies or socioeconomic/cultural/institutional factors is not possible, it appears that Bulgaria's overall health status performance as measured by DALYs is about average compared to countries with similar levels of income and health spending.

Figure 100: DALYs Per Capita Relative to Income and Spending, 2000 and 2012

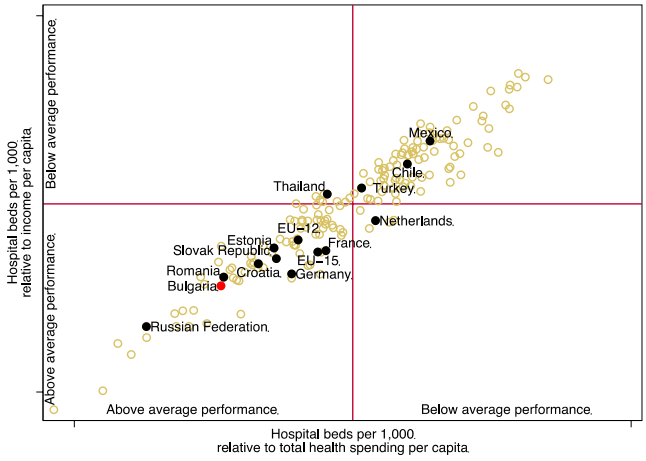


Source: World Development Indicators, WHO NHA, and WHO Global Health Estimates, 2014

29. Bulgaria's bed to population ratio and physician to population ratios are 6.4 per 1000 and 3.8 per 1000, respectively.131 The levels of physical and human inputs are high relative to the EU-12 average of 5.8 hospital beds per 1000 population and 2.9 physicians per 1000 population.

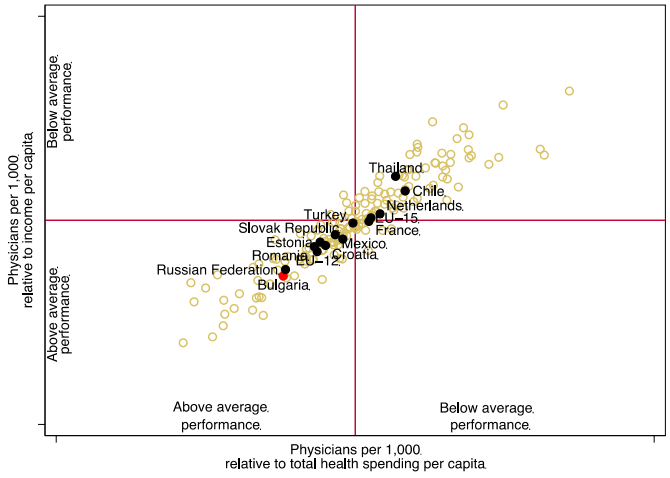
30. Figure 101 and Figure 102 benchmark Bulgaria's performance globally with respect to hospital beds and physicians. The figures show that on both measures of inputs Bulgaria performs significantly above average holding income and health spending constant.

Figure 101: Hospital Beds to Population Ratio Relative to Total Health Spending and Income



Source: World Development Indicators & WHO, 2014.
Note: Beds and GDP per capita data are for the latest/earliest available year.

Figure 102: Physician Population Ratio Relative to Total Health Spending and Income

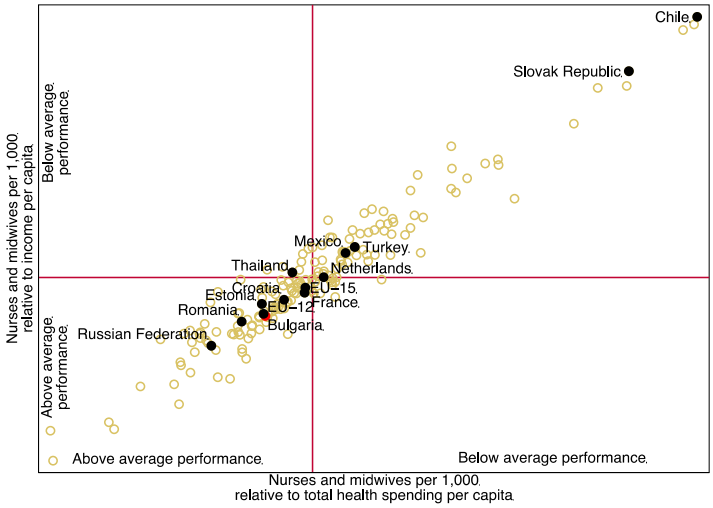


Source: World Development Indicators & WHO, 2014.
Note: Physicians and GDP per capita data are for latest/earliest available year.

[131] Data are for latest available year (2011).

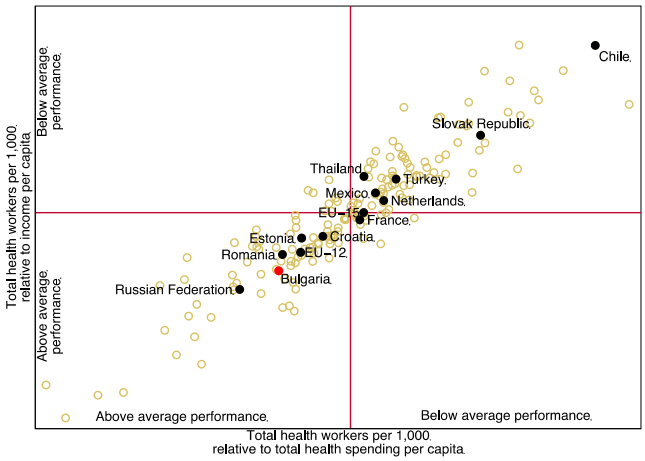
31. In addition, Bulgaria's nurse and midwife to population ratio is 4.684 per 1000. As shown in Figure 103 and Figure 104, Bulgaria performs significantly above average in terms of the number of nurses and midwives per population, as well as the total number of health workers (physicians, nurses, and midwives), holding income and health spending constant.

Figure 103: Nurses and midwives to population ratio relative to total health spending and income



Source: World Development Indicators & WHO, 2014.
Note: Physicians and GDP per capita data are for latest/earliest available year.

Figure 104: Total health workers to population ratio relative to total health spending and income



Source: World Development Indicators & WHO, 2014.
Note: Data are for latest/earliest available year. Total health workers (a) include physicians, nurses, and midwives.

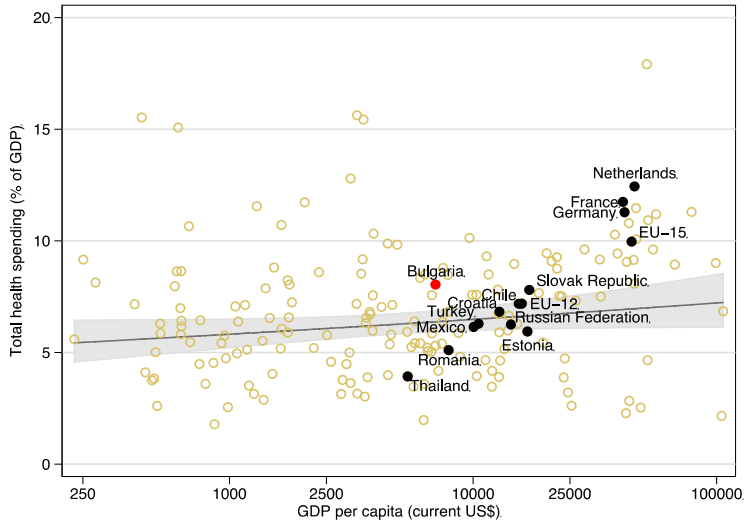
32. The above comparative analysis suggests that for its health spending and income levels, Bulgaria's aggregate health outcomes and physical and human inputs are significantly above the global averages. To

more fully understand the system's performance, one must also analyze its financing performance, including the level of financial protection, the system's fairness and equity, and public satisfaction.

The analysis below provides a global performance assessment of Bulgaria's health financing.

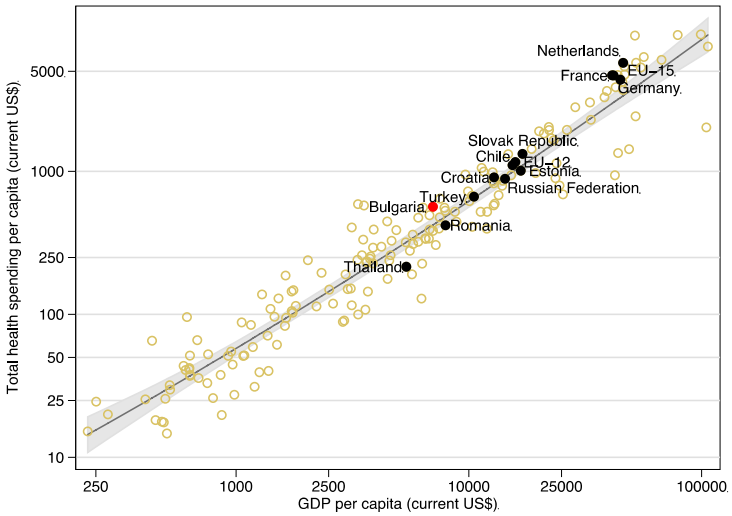
33. In 2012, total health spending in Bulgaria represented 8 percent of GDP, with Bulgaria spending 566 US dollars per capita or 1139 per capita in international dollars (PPP). Figure 105 shows Bulgaria's health spending in 2012 as a share of GDP compared to other comparable income countries, while Figure 106 and Figure 107 display per capita spending in both exchange rates and international dollars. A consistent picture emerges for all three measures of total health spending: Bulgaria's total health spending in 2012 is above average for a country of its income level.

Figure 105: Total Health Expenditure as a Share of GDP versus Income Per Capita, 2012



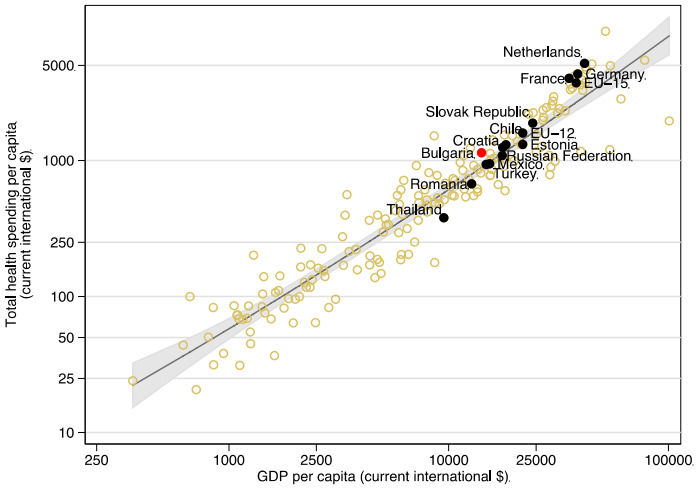
Note: x-axis log scale.

Figure 106: Total Health Expenditure Per Capita versus Income Per Capita in Current US$, 2012



Note: Both axes log scale

Figure 107: Total health expenditure per capita versus income per capita in current international$, 2012

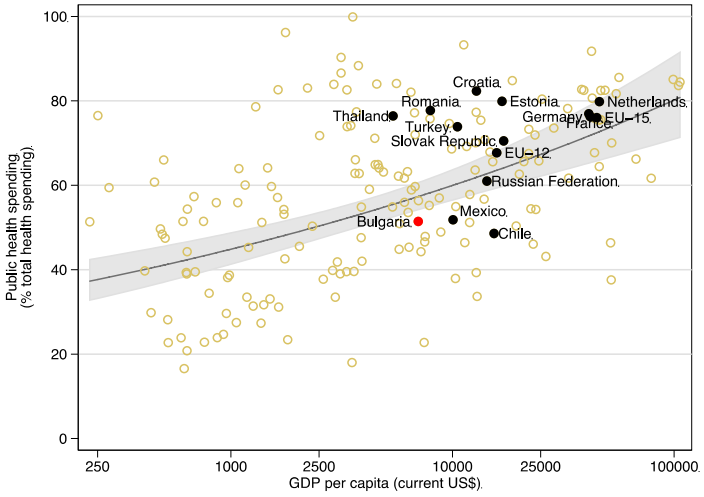


Source: World Development Indicators & WHO, 2014.
Note: Both axes log scale.

34. Public spending on health can also be measured in a number of ways including: as shares of total health spending and GDP, public spending per capita in exchange-rate-based and international dollars, and public spending on health as a share of all public spending. In 2012, public health spending represented 51.4 percent of total health spending. As a share of GDP, this constituted 4.1 percent. In per capita terms, public health spending was 291 in exchange rate based US dollars. Figure 108-- Figure 109 provide global comparisons for 2012. Public health spending as a share of total health spending is below the global average, but is slightly above the global average when measured as a share of GDP. In per capita terms (in both exchange rates and international dollars), public health spending is about average relative to other comparable income countries. Given the average level of public health spending as a share of the

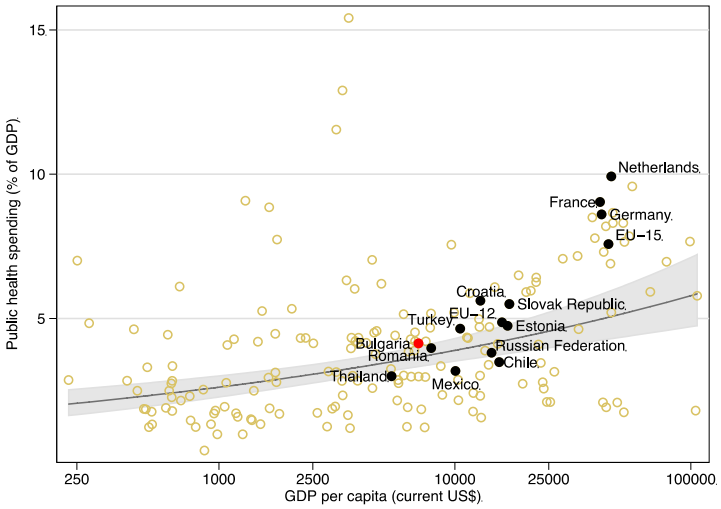
total government budget and per capita, as well as the high public health spending to GDP share level, it appears that Bulgaria has already prioritized health within its budget allocations.

Figure 108: Public health expenditure as a share of total health expenditure and GDP per capita, 2012



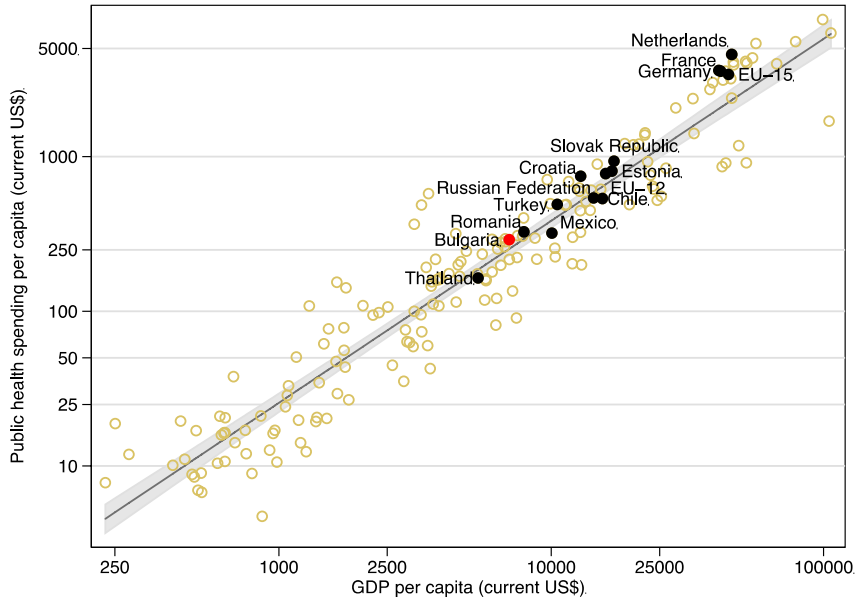
Note: x-axis log scale.

Figure 109: Public health expenditure as a share of GDP versus income per capita, 2012



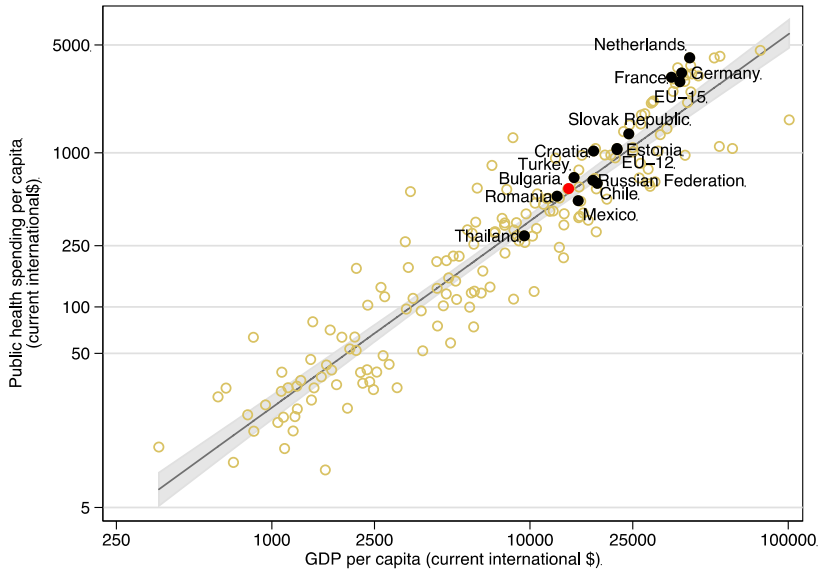
Note: x-axis log scale.

Figure 110: Public Health Expenditure Per Capita versus Income Per Capita in Current US$, 2012



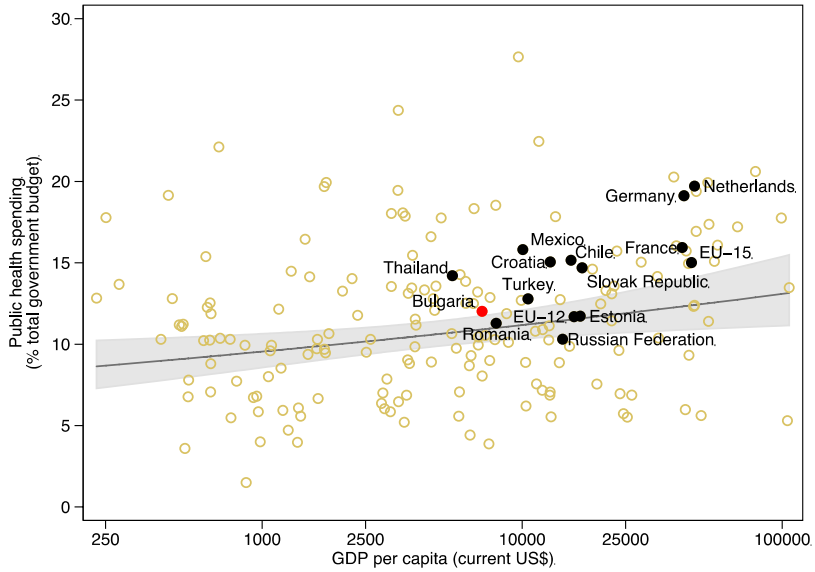
Note: both axes log scale.

Figure 111: Public Health Expenditure Per Capita versus Income Per Capita in Current International $, 2012



Note: Both axes log scale.

Figure 112: Public Health Expenditure as a Share of Total Government Expenditure versus Income Per Capita, 2012

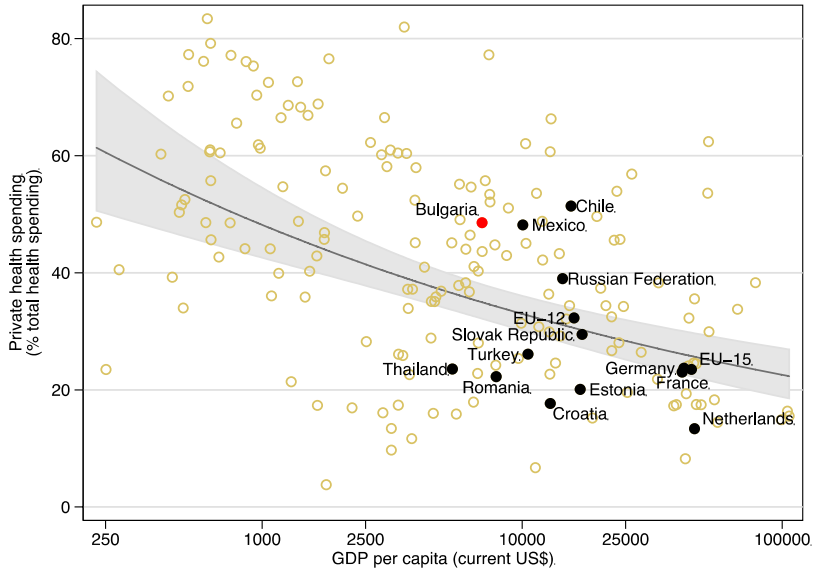


Source: World Development Indicators & WHO, 2014.

35. It is especially important to examine the levels of private spending given the implications they hold for financial protection and the equity of the system. Out-of-pocket payments, in particular, directly impact the household's financial status and can push households into poverty. Private insurance expenditures, on the other hand, provide some financial protection through the pooling of risks and their redistribution between healthy and sick individuals and households.

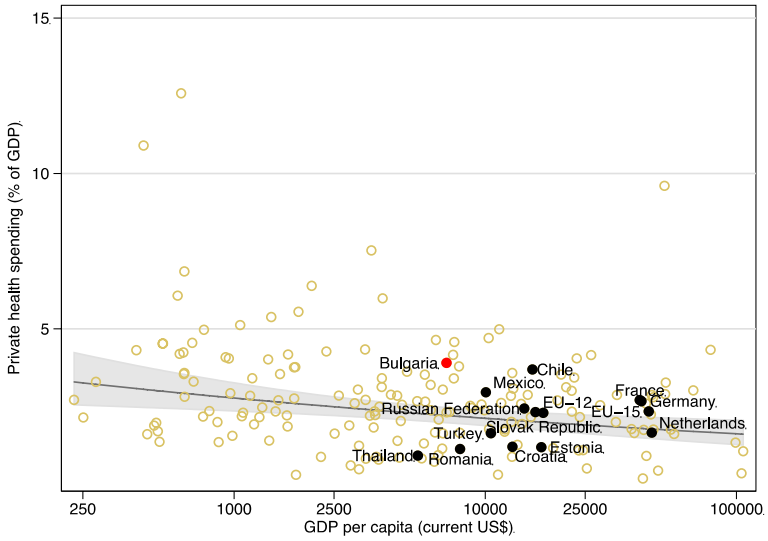
36. In 2012, private health spending in Bulgaria represented 48.6 percent of total health spending and 3.9 percent of GDP. Figure 113-Figure 116 show private spending as shares of total health spending and GDP and in per capita exchange rate-based and international dollar terms for 2012 relative to other comparable income countries. Private spending is significantly above average for all measures for a country of Bulgaria's income level.

Figure 113: Private Health Spending as a Share of Total Health Expenditure versus Income Per Capita, 2012



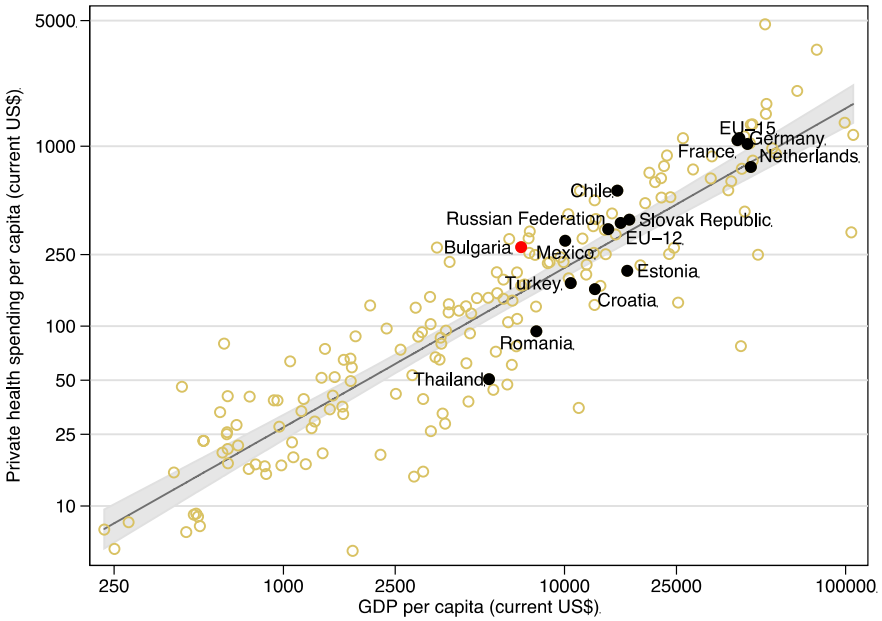
Note: x-axis log scale.

Figure 114: Private Health Spending as a Share of GDP versus Income per Capita, 2012



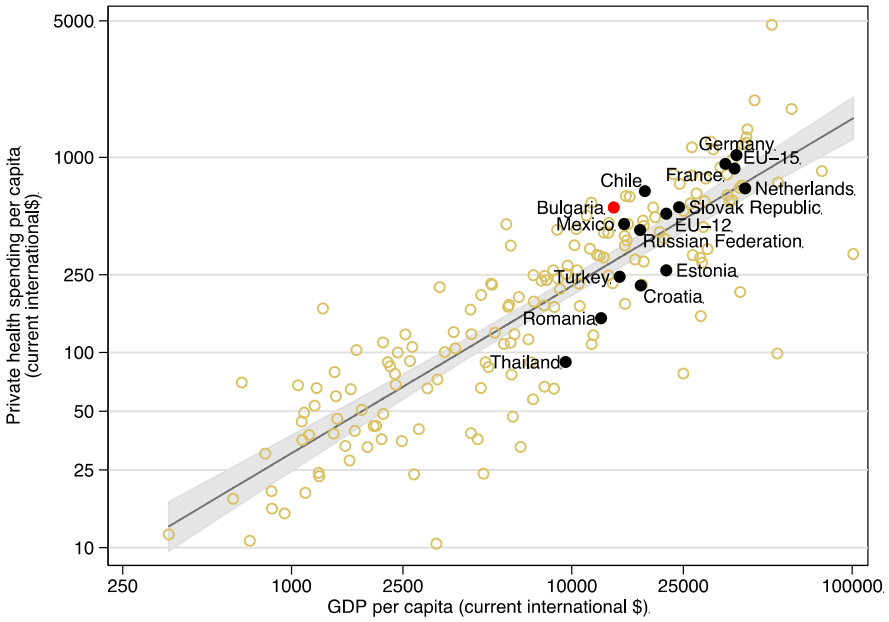
Note: x-axis log scale.

Figure 115: Private Health Expenditure Per Capita versus Income Per Capita in Current US$, 2012



Note: Both axes log scale.

Figure 116: Private Health Expenditure Per Capita versus Income Per Capita in Current International $, 2012

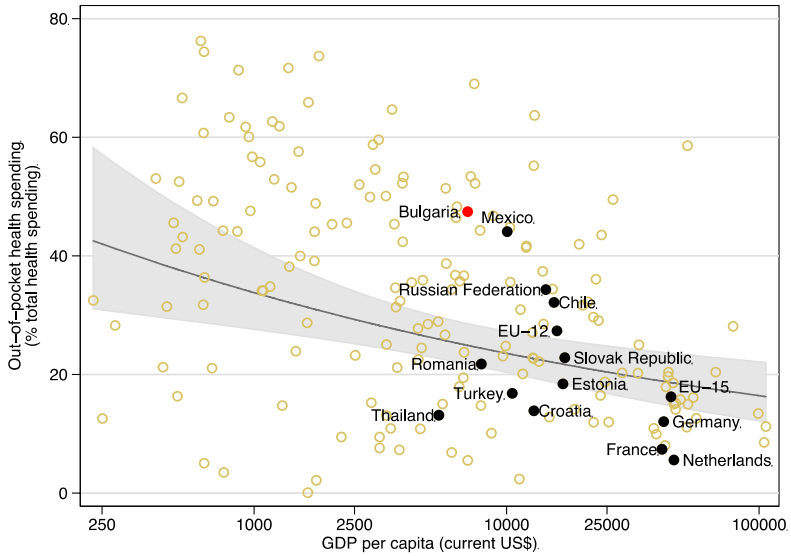


Source: World Development Indicators & WHO, 2010.
Note: Both axes log scale.

37. As discussed above, out-of-pocket spending is a gross measure of financial protection. WHO has indicated that countries with OOP shares below 15-20 percent of total health spending are able to ensure financial protection to their citizens. While gross percentages and levels of OOP are useful macro indicators of financial protection or lack thereof, to understand the equity of the system, one must look at household-level information and obtain information by income quintile about the share of out-of-pocket health spending as a share of total household income/consumption overall, and the impoverishing effects of out-of-pocket health spending.

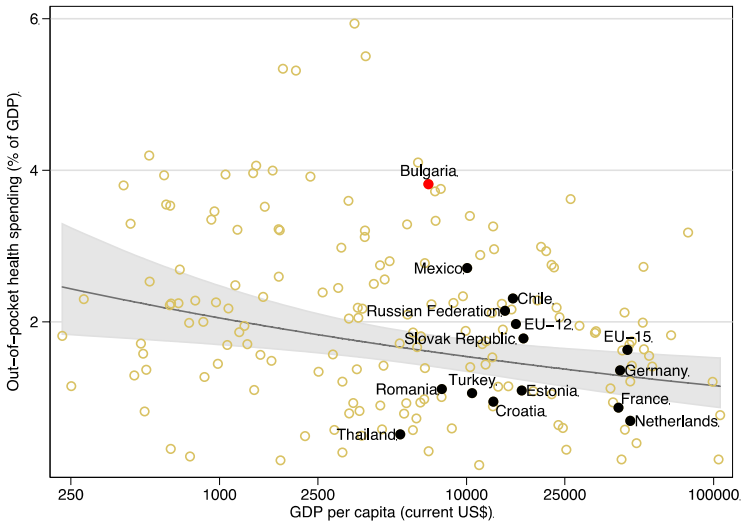
38. Out-of-pocket spending represented 97.7 percent of all private health spending. As a share of total health spending this constituted 47.5 percent. Figure 117- Figure 118 provide global comparisons of out-of-pocket spending measured as: shares of total health spending and GDP and in per capita exchange rate-based and international dollar terms for 2012. All measures of out-of-pocket spending are significantly above global averages for comparable income countries. Given that OOP represents 47.5 percent of total health spending, Bulgaria fails to meet the broad WHO macro 15-20 percent criterion for financial protection.

Figure 117: Out-of-Pocket Spending as a Share of Total Health Expenditure versus Income Per Capita, 2012



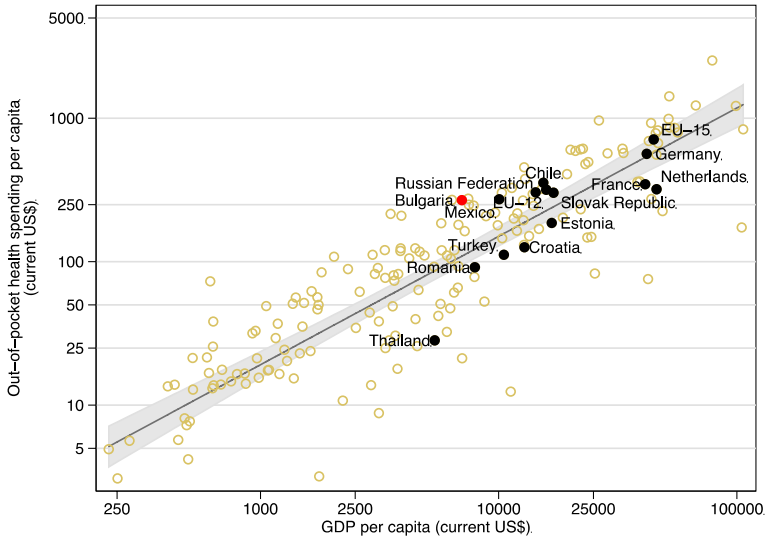
Note: x-axis log scale.

Figure 118: Out-of-Pocket Health Expenditure as a Share of GDP versus Income per Capita, 2012



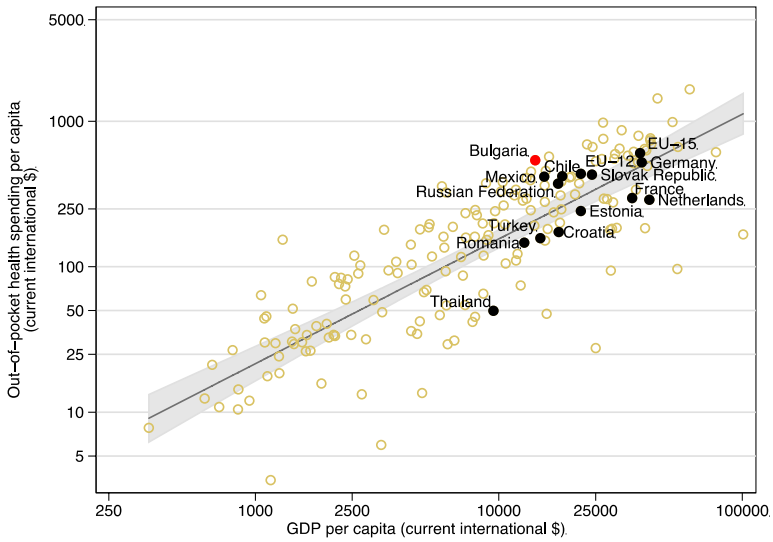
Note: x-axis log scale.

Figure 119: Out-of-Pocket Health Expenditure Per Capita versus Income Per Capita Current US$, 2012



Note: both axes log scale

Figure 120: Out-of-Pocket Health Expenditure Per Capita versus Income Per Capita Current International $, 2012



Source: World Development Indicators & WHO, 2011.
Note: both axes log scale.

2.3. Fiscal space for health

39. It is important to analyze the available fiscal space to understand whether the observed expenditure trends will be sustainable in the future.

What is Fiscal Space for Health?

40. Fiscal space can be defined as the country's ability to increase Government spending without undermining the country's future fiscal sustainability or solvency (Heller, 2006). Additional funds for health can be generated using a combination of different sources, which can be more broadly grouped into the following six categories (Tandon, 2010, Heller 2006):

a. Conducive macroeconomic conditions, such as economic growth and rising revenue shares
b. Reprioritization of expenditure on health, within the Government budget
c. Borrowing
d. Increase in other health-specific resources (earmarked taxation or premiums)
e. Health-specific foreign aid and grants
f. Increase in efficiency in health outlays

41. The first four categories lie largely outside the scope of the health sector and are dependent on macroeconomic policies and conditions. Nevertheless, it is important to analyze what implications these policies and factors have on the available fiscal space for health. The last two lie within the domain of the health sector and garner particular attention, as they are able to generate additional sector-specific resources (Tandon and Cashin, 2010), although Bulgaria is unlikely to raise health specific foreign aid and grants.

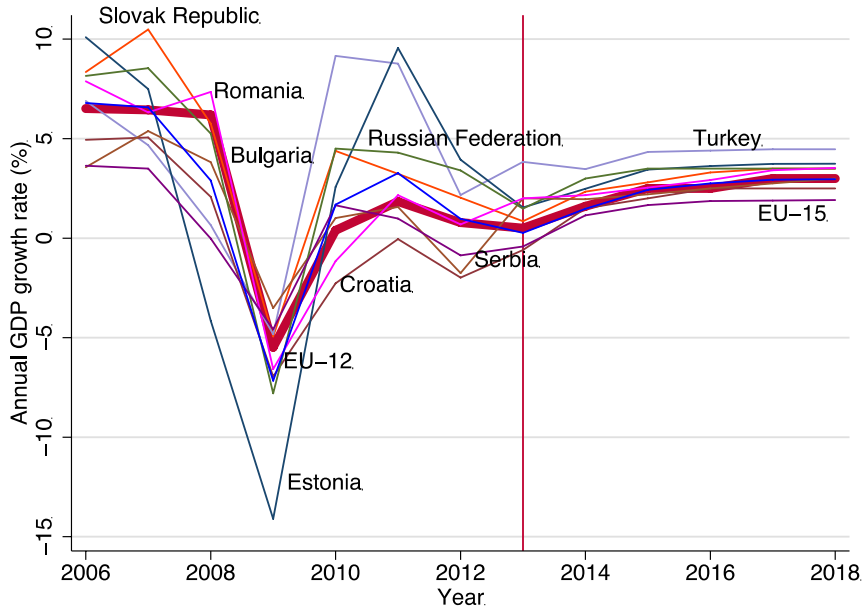
42. In the paragraphs below, we only discuss the macroeconomic environment using IMF's projections until 2018.

Conducive macroeconomic conditions

Economic growth

43. As shown in Figure 121, Bulgaria experienced a large economic shock during the financial crisis. While the growth rate dipped to the lowest rate of -5.5 percent in 2009, IMF projections indicate that growth rates are expected to rise to 2.5 percent in 2015, with expected annual GDP growth of roughly 3 percent until 2019 .

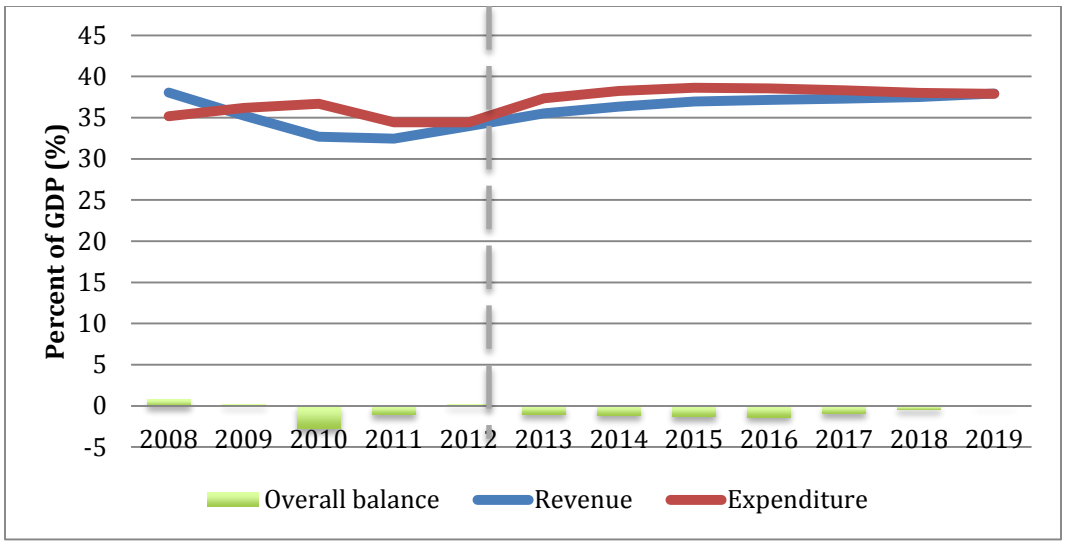
Figure 121: Annual Economic Growth Rates; Actual: 2006-2013; Projected: 2014-2018



Source: IMF World Economic Outlook, 2014.
Note: Projections for Bulgaria start in 2014

44. However, Bulgaria's key fiscal indicators are not projected to change substantially over the next five years. Both general government revenues and expenditures are expected remain roughly stable around 38 percent over the following four years (Figure 122).

Figure 122: Key Fiscal Indicators: Actual: 2008-2012; Projected: 2013-2019

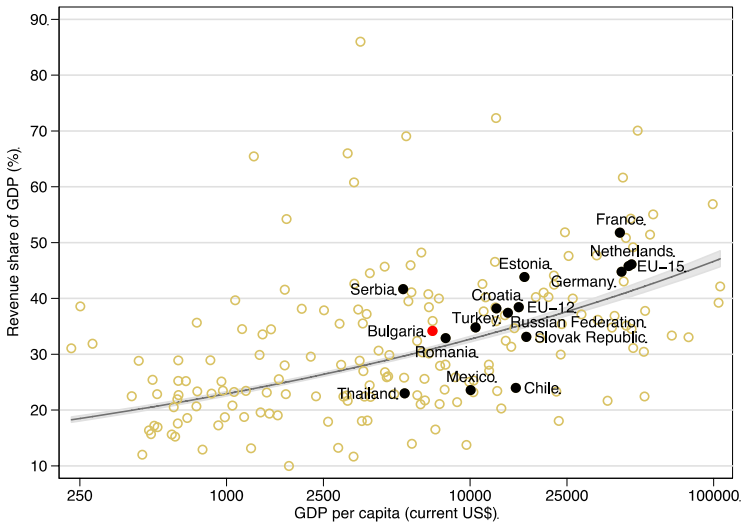


Source: IMF World Economic Outlook, 2014.
Note: Projections for Bulgaria start in 2013

Improved Revenue Generation

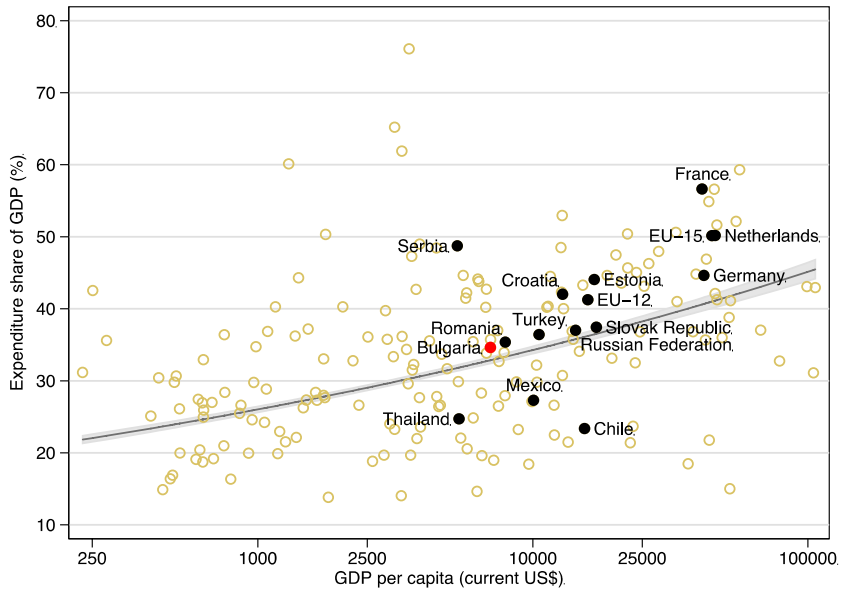
45. Bulgaria's revenue and expenditures efforts are above average relative to other comparable income countries (Figure 123 and Figure 124). This suggests that it might be difficult to increase public spending on health. Instead, efficiency measures could be pursued.

Figure 123: Revenue Share of GDP versus GDP Per Capita, 2012



Sources: World Development Indicators & WHO, 2014.
Note: Both axes log scale.

Figure 124: Expenditure Share of GDP versus GDP Per Capita, 2011



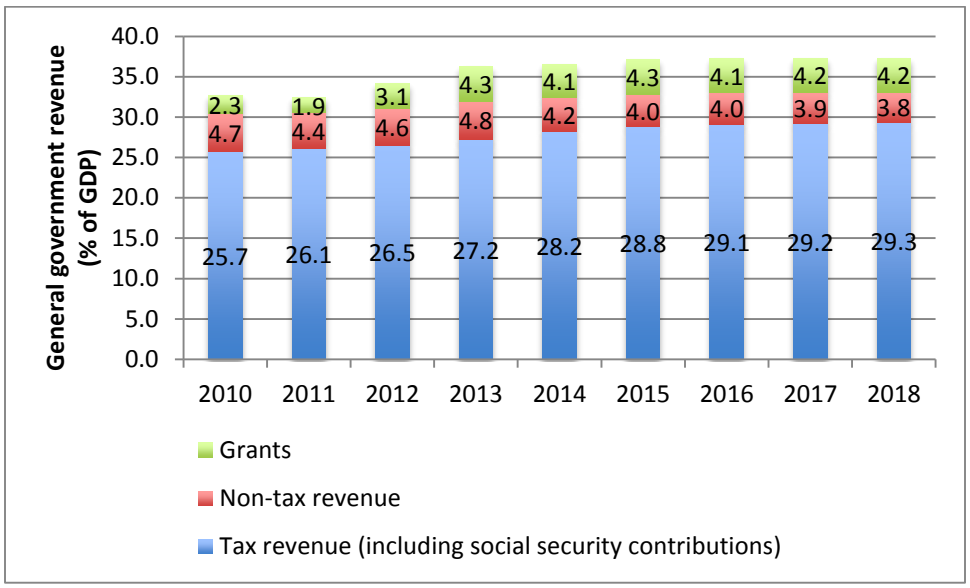
Source: World Development Indicators and WHO NHA, 2014

46. The composition of revenues is not expected to change significantly. As reported in the IMF Article IV, tax revenue (including social security contributions) will continue to represent the bulk of government revenues (almost 80 percent). The main sources of taxes are value-added taxes, social contributions, and excises (Figure 126).

47. Revenue figures vary depending on the source. According to data from IMF Article IV, in 2012 general government revenue represented 34.2 percent of GDP. Meanwhile, the World Bank Aging Report reports a figure of 30.5 percent of GDP in 2012. The latest report on taxation trends in the European Union from Eurostat (2014) presents a figure of 27.9 percent of GDP. The difference can be partly explained by the difference in the type/definition of revenue.[132] While IMF figures suggest that revenue is expected to increase slightly in the medium term, projections from the World Bank Aging Report suggest that revenue will decrease by slightly more than 1 percentage point between 2012 and 2020.

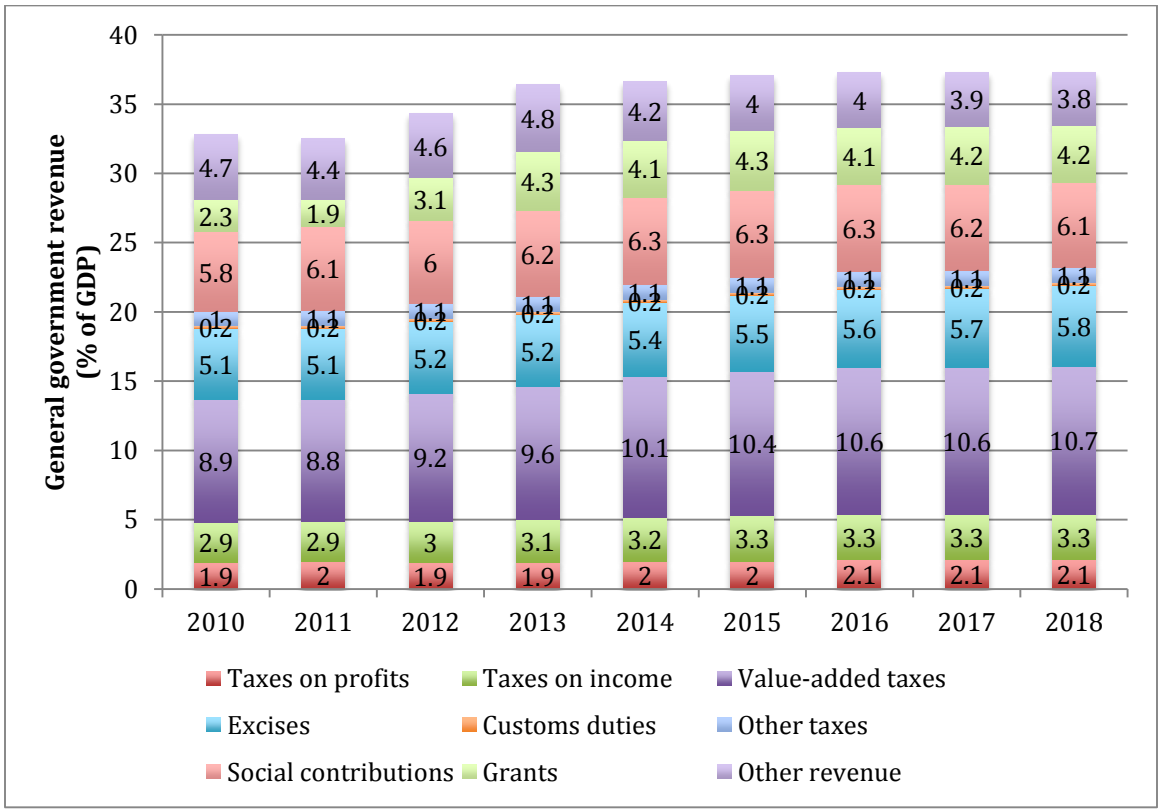
[132] IMF Article IV uses general government, which consists of the central government (budgetary funds, extra budgetary funds, and social security funds) and local governments. General government revenue includes tax revenue, including social security contributions, non-tax revenue, and grants. EU Tax Report (2014) also appears to use general government revenue but only includes tax revenue (indirect taxes, direct taxes, and social contributions). It does not take into account grants and non-tax revenue. If we compare the general government tax revenue from IMF Article IV with the general government tax revenue reported in the EU Tax Reports, the numbers still differ by more than 1 percentage point (26.5 percent of GDP versus 27.9 percent of GDP, respectively). The World Bank Aging Report (2013) and Onder et al. (2014), which serves as the basis for the figures presented in the Aging Report, do not specify whether the figures refer to general government revenue. The Aging Report does, however, include tax revenues, non-tax revenues, and grants when calculating the total revenue figure.

Figure 125: Bulgaria's revenue composition (Percent of GDP), 2010-2018



Source: IMF Article IV (2014)
Notes: Projections begin in 2013

Figure 126: Bulgaria's revenue composition (detailed breakdown), 2010-2018



Source: IMF Article IV (2014)

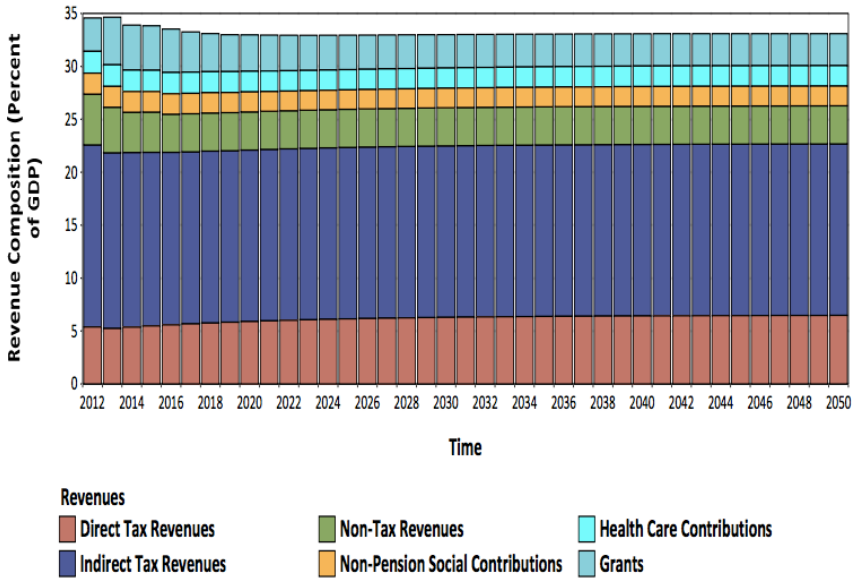
Notes: Projections begin in 2013

Figure 127: Revenue composition (Percent of GDP) in Bulgaria, 2012-2050

	2012	2015	2020	2025	2030	2035	2040	2045	2050
	Percent of GDP								
Direct tax revenues	5.4	5.5	5.9	6.1	6.3	6.4	6.4	6.5	6.5
Indirect tax revenues	17.2	16.4	16.2	16.2	16.2	16.2	16.2	16.2	16.2
Non-tax revenues	4.8	3.8	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Grants	3.1	3.8	3.4	3.3	3.2	3.1	3.1	3.0	3.0
Total	30.5	29.5	29.1	29.2	29.3	29.3	29.3	29.3	29.3

Source: World Bank (2013). Mitigating the Economic Impact of an Aging Population. Options for Bulgaria

Figure 128: Revenue composition (Percent of GDP) in Bulgaria, 2012-2050



Source: Onder et al. (2014)

48. Bulgaria is one of the two countries in the European Union, which relies heavily on indirect taxes, with indirect taxes representing more than 55 percent of government revenue in 2012.[133] VAT[134] accounted for 61 percent of indirect tax revenue, while excise duties represented 33.3 percent. Social contributions represented 25.8 percent of total taxation in 2012 (Eurostat, 2014).[135]

49. Compared to other EU countries, Bulgaria relies more heavily on the central government for revenue collection. According to Eurostat (2014), revenue collected by the central government represented 70.3 percent of overall revenue in Bulgaria. This is almost 22 percentage points higher than the EU average share of revenues collected by the central government. The remaining 25.8 percent was collected through social security funds, and local government revenues represented only 3 percent of tax receipts (Eurostat, 2014). Revenue from labor taxation remains low, representing 9.2 percent of GDP. This is the lowest share in the EU and is almost 11 percentage points below the EU average.

[133] The other country is Croatia, where indirect taxes also represent more than 50 percent of government revenue.
[134] The standard VAT rate is 20 percent, with a reduced rate of 9 percent applicable to hotel accommodation only (Eurostat, 2014).
[135] Social insurance funds include contributions for pensions (17.8 percent), general sickness and maternity (3.5 percent), health (8 percent), and unemployment (1 percent). The contributions are shared between the employer and employee. For pension contributions, the employer is responsible for 9.9 percent and the employee for 7.9 percent. The other social contributions are shared between the employer and employee using a ratio of 60:40. The monthly ceiling income is set at BGN 2,400 (EUR 1,227).

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