



OECD Reviews of Health Systems

National Health Accounts of Kazakhstan



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Foreword

The Republic of Kazakhstan has made significant economic progress since its independence from the Soviet Union in 1991. GDP per capita has risen rapidly to put it on a par with the Central European members of the OECD. As the economy has grown, health has attained a higher priority on the policy agenda.

Kazakhstan inherited a healthcare system employing high levels of human and physical resources but with limited financial resources to support such an infrastructure. Over time, a number of cross-sectoral reforms have been pursued in an attempt to modernise the system and improve the health status of the population. While there are notable successes, Kazakhstan continues to face challenges to improve the accessibility, equity and efficiency of health services.

To inform the ongoing reform agenda and monitor progress towards health system goals, accurate, timely and comprehensive information on health care financing and spending over time is essential. A clear understanding of resource allocations and drivers in the context of current strategies and future sustainability is a prerequisite. Adherence to a standard international framework can serve both national policy requirements as well as benchmarking against countries in a regional and international setting.

This report assesses how Kazakhstan measures up in the development and application of its national health accounts framework, reviewing the governance, production and use of health accounting information. Recommendations across the whole cycle of institutionalisation are made to improve the efficient delivery of information for decision-making purposes.

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Acronyms and abbreviations

ACSC	Ambulatory Care Sensitive Condition
CER	Center for Economic Research
CPA	Classification of Products by Activity
CPMS	Committee for Purchasing of Medical Services
CRH	Central Rayon Hospital
DF	Department of Finance
DRG	Diagnostic Resource Groups
EC	European Commission
FAE	Finance and Economic statistics
FTE	Full-time Equivalent
GDP	Gross domestic product
HAAT	WHO Health Accounts Analysis Tool
HAPT	WHO Health Accounts Production Tool
HBS	Household Budget Survey
HCQI	Health Care Quality Indicators
JHAQ	Joint Health Accounts Questionnaire
KazSRIOR	Kazakhstani Scientific-Research Institute for Oncology and Radiology
KZT	Kazakhstan Tenge
LHA	Local Health Authorities
MNE	Ministry of National Economy
MOH	Ministry of Healthcare
MOHSD	Ministry of Healthcare and Social Development
NHA	National Health Accounts
OECD	Organisation for Economic Co-operation and Development
OOP	Out-of-pocket payments
OPM	Oxford Policy Management
PHC	Primary Health Care
PPP	Purchasing Power Parity
RCEH	Republican Center of e-Health
RCHD	Republican Center for Healthcare Development
RK	Republic of Kazakhstan
SGBP	State Guaranteed Benefit Package
SHA	System of Health Accounts
SHI	Social Health Insurance
SSD	Socially Significant Diseases
UHC	Universal Health Coverage
VOS	Volume of Services statistics
WB	World Bank
WHO	World Health Organization

Executive Summary

Experience from many OECD and non-OECD countries has shown that the sustained production and use of a standard and robust health accounting framework, such as the System of Health Accounts 2011, can provide timely and accurate information on health care expenditure and financing for health policy and international benchmarking. To achieve this requires strong governance, sufficient capacity in terms of expertise, and sustainable financing.

The Republic of Kazakhstan has experienced a stop-start history regarding health accounts production with a first project in 2004-05. More regular production has been in place since 2011, bolstered by the transition to the System of Health Accounts 2011 methodology and the increased role of the Republican Center for Healthcare Development, the technical body responsible for the production.

This study assesses the strengths and weaknesses of the production process, in terms of overall governance, compilation and use of health accounts information in Kazakhstan. Recommendations are provided to improve the data sources and methodologies and align as closely as possible to international definitions and concepts.

While steps have been taken to improve the sustainability of the production process and ensure sufficient capacity by tackling the turnover of personnel and knowledge transfer, there is room to further prioritise and ground the activity within the ministry through legal measures. In terms of governance and cooperation, the involvement of a broader-based steering committee would be advantageous to improve the buy-in and broader acceptance of results, which in turn would increase the profile and use in government and beyond. Similarly, a greater involvement of health departments and agencies at the oblast/city level would ensure higher visibility of the work.

As for the compilation, the report points to some immediate adjustments that can easily be introduced to bring estimates in line with international definitions and boundaries, ensuring better harmonisation with health spending estimates of OECD and other comparator countries. This includes items such as capital spending and other expenditure items either currently excluded or included in the current health spending aggregates. Further adjustments are made within the classifications of functions, providers and financing. The resulting estimates for 2014, presented in Chapter 6, are shown in comparison to OECD countries.

On developing and refining the health accounts, a number of detailed recommendations are provided across the health accounts classifications on potential supplementary data sources and methodologies – based on best practices from OECD countries. In particular, some of the current estimates are based on a single perspective, either from the provider or financing side, and would benefit from a "triangulation" with other data sources to validate or calibrate the original estimates. This is particularly in the case of households' out of pocket spending, which accounts for a third of overall health spending according to current estimates.

The development of productivity measures for the health sector in Kazakhstan would also benefit from more robust and detailed data from the NHA giving expenditure estimates at the sector level. Expanding the methodology beyond the current simple measures, perhaps along the lines of that developed in the United Kingdom, could be seen as a feasible approach and is worth investigating.

Regarding future work and expansion of the health accounts framework, the development of expenditure by disease, age and gender would provide information about the current resource allocations to beneficiary groups. This could also feed into work on projections of health spending with respect to future population needs.

Finally, health accounts in Kazakhstan have benefitted and would continue to benefit from a knowledge exchange with health accounting experts in other countries, both those more advanced and experienced in the process as well as those at a similar level of development. In that regard, enhanced participation in regional and international fora could be highly beneficial.

Assessment and recommendations

Country experience has shown that the development and institutionalisation of National Health Accounts (NHA) is a cornerstone in the provision of sound evidence on health financing and resource allocations. The establishment of strong governance structures, sufficient capacity and sustainable processes to produce regular, accurate and timely data is important in better informing health policy and budgetary decisions. At the national level, timely and accurate measures can assist in monitoring progress against stated health system objectives, such as moves towards universal health coverage, the reduction of the financial burden on households, or the introduction of health system and financing reforms. Furthermore, the production of such data and indicators according to recognised standards and definitions is seen as important in benchmarking health spending in a meaningful international context.

With the introduction of a global health accounting standard – System of Health Accounts 2011 (SHA 2011) – there has been added momentum in recent years for countries to fully implement and institutionalise the health accounts framework. Prior to this, many countries primarily outside of the OECD experienced a stop-start approach to institutionalisation without the political commitment, organisational structures and capacity needed to fully sustain the process.

This study reviews the National Health Accounts (NHA) of the Republic of Kazakhstan (RK) assessing the data sources and methodologies used in their compilation, and the extent to which they meet current international standards as set out in the SHA 2011 health accounting framework. The study reviews the cycle of NHA institutionalisation from the governance of health accounts production through to its dissemination and use in the policy-making and budgetary processes. A set of recommendations about how these can be strengthened is provided.

The central chapters provide an in-depth technical assessment of the various data sources and methodologies used in the production of the health accounts. Based on a detailed examination of the latest NHA for 2014, an adjusted set of health accounts tables and charts are presented alongside comparisons with OECD and other countries. The penultimate chapter provides some directions to follow regarding the strengthening and expansion of the health accounts information set with the objective of measuring efficiency and productivity in the health sector.

Weaknesses in the institutionalisation of health accounts often result from a failure to ensure the necessary capacity and the retention of sufficient expertise in order to maintain the NHA production process. This has been experienced as much in high-income countries as in lower income countries such that a clear strategy for ownership and governance of the process is essential. Where in the past, external agencies and consultants have played a sizeable role in the production process, this has also tended to lead to ad-hoc and irregular production of health accounts without the full sense of ownership of the process. That said, it should be recognised that to kick-start the NHA process, external support and financing can be necessary but with a long-term strategy to ensure that the ultimate ownership rests with the relevant national

authorities. As a result of this review, the following assessment and recommendations are made:

Political commitment and sufficient resources are essential to sustain the production process

Kazakhstan has experienced some sustainability issues regarding ongoing health accounts production since the first development of the NHA in 2004-05 under the responsibility of the then Ministry of Healthcare (MOH) and with the support of the World Bank (WB). The original project suffered from an onerous reporting burden placed on health care providers and the implementation of a complex statistical programme; health accounts were only compiled for the years 2004 to 2006 according to this framework. A second attempt in 2011 to institutionalise health accounts came as part of the WB “Kazakhstan health sector technology transfer and institutional reform project”, which involved the contracted services of Oxford Policy Management (OPM) and the combined efforts of the MOH and the Republican Center for Healthcare Development (RCHD); the aim was to reduce the administrative burden on respondents and the use of stable and regular data sources. From 2013, there have been intensified efforts linked to the adoption of the SHA 2011 framework and improved governance and cooperation between the newly-merged Ministry of Healthcare and Social Development (MOHSD) and RCHD, with the former the ‘purchaser’ and main user of the health accounts and the latter the technical agency producing the health accounts.

With the technical work now established in the RCHD, and dedicated resources and a strategy to ensure future knowledge transfer in place, the MOH is being seen to tackle the past issues of sustainability of the NHA process and is demonstrating a commitment as to the importance of the work. However, the financial and legal basis of the work needs to be strengthened. Therefore, it is strongly recommended to further reinforce the process by including it as a mandatory annual activity within the “Health Code”, which covers the main law regarding the health care system in Kazakhstan.

Developing health accounts according to international standards is key to better informing health care policy

Based on an assessment of the current level of detail and coverage of the NHA of RK, it is concluded that Kazakhstan is in a position to produce solid data on health expenditure and financing that go a long way towards meeting both national and international reporting requirements. The NHA of RK are generally found to be based on strong data sources that are both timely and stable, particularly regarding state and local budgetary information but also from the private financing side (private insurance), and follow predominantly coherent methodologies. However, the integration of data sources from different health spending perspectives is lacking so far in the compilation process and this would be recommended to verify the estimates and lead to a more robust health accounting framework. There are also a number of detailed recommendations regarding data sources, the classification and allocation of expenditure items and methodologies which are expected to bring the overall aggregates of health spending in Kazakhstan more closely in line with the boundaries and definitions of SHA 2011, and as a consequence more fully comparable with OECD countries.

Beyond the detailed reporting of the three main dimensions of financing, provision and functions of care, NHA of RK provides a breakdown of the revenue sources of the financing schemes, the factors of provision and regional (by oblast/city) spending by function – the latter having important policy implications in the analysis of regional differences in the provision and

use of health services. The extent of reporting to cover these additional classifications goes beyond the current reporting practices of most OECD countries. Future directions for expansion of the health accounting framework should focus on developing accounts according to patient characteristics (e.g. by disease category, age and gender) to provide further information on resource allocations among the population. In addition, the availability of aggregate sources of government and household spending should lend itself to the publication of preliminary spending aggregates within four-six months from the end of the reference period – of clear importance in the provision of timely data to policy makers.

In addition to refining current estimates of the health accounts, further disaggregation of the health sector input costs by provider category (i.e. the production of the factors of provision by provider table – FPxHP) would aid the analysis of productivity trends at the sub-sector level, beyond total spending by provider. Similarly, the disaggregation in the first instance of hospital spending by diagnostic category by leveraging on the Diagnostic Resource Groups (DRG) cost data would allow a disease based approach to comparing cost differences across facilities, regions and internationally.

There is a need to respond more to demand from policy makers by translating health accounts into policy relevant briefs

One of the major challenges in the successful implementation of NHA is recognising that the activity goes beyond the simple production of the accounts, but extends into the translation and dissemination of the information such that it can be more fully embedded into the decision-making process. Furthermore, feed-back mechanisms should be established such that the information delivered generates the right responses to the policy questions asked. For many countries this has historically represented a weak link in the cycle resulting in the limited use of the data produced.

In Kazakhstan, the NHA primarily serves the MOH, in particular providing information to support upcoming reforms, such as the implementation of Social Health Insurance (SHI) and the resulting projections of future health spending. However, there was found to be limited systematic or widespread usage of the accounts in shaping health care policy. Furthermore, the lack of involvement or awareness from other ministries or government agencies is further limiting its impact.

A wider and higher profile dissemination of the health accounts could strengthen and increase the use of the information through government, local authorities and academic institutions. Enhanced collaboration with the Committee for Statistics of the Ministry of National Economy (MNE) is particularly important to ensure the confidence from the side of MNE, ultimately leading to wider usage of NHA. At the decision-making level, the usability of NHA results can be improved by producing short executive summaries alongside the standard NHA annual report. The publication of preliminary estimates will also respond to the often raised criticism of timeliness – initial estimates could be available between four to six months after the end of the reference period.

Increased cooperation and dissemination to some of the principal data providers, such as the Committee for Purchasing of Medical Services (CPMS) and the Health Departments at the oblast/city level will increase the buy-in to the NHA process. In addition, the availability of health spending estimates at the oblast/city level should be of particular interest for analytical purposes. The creation of the Social Health Insurance Fund and its branch offices may generate some issues regarding data collection (change in series, accounting systems, etc.).

A broad-based steering committee, possibly with a technical sub-committee drawing on the expertise within the Committee for Statistics among others, could benefit the production, but also the wider acceptance and legitimacy of the health accounts results. Representation from within the MOH and other ministries, as well as eventually from regional, academic and external bodies could further strengthen and enhance the outputs.

Increased and active interaction with international organisations is needed to improve the comparability and quality of the statistical data

Kazakhstan can continue to benefit from increased international and regional cooperation and participation in health accounting networks. The annual meeting of OECD Health Accounts Experts and Correspondents for Health Expenditure Data, held in Paris each October, is the principal forum to discuss developments and methodological issues in health accounts. The meeting brings together delegates from OECD countries, OECD accession countries, Key Partner countries¹ and Country Programmes² together with health accounting experts from other International Organisations (WHO, European Commission). Kazakhstan has been represented at both the 2014 and 2015 meetings, and continuing participation should be encouraged to keep abreast of current developments and assist knowledge transfer from the experiences of other countries. In particular, the involvement in SHA related projects e.g. the development of health specific Purchasing Power Parities (PPP) can bring additional benefits to the international comparability of health spending in Kazakhstan.

In addition, the OECD-Korea Policy Centre³ organises the annual Asia-Pacific Health Accounts Meeting in Seoul. This mirrors the Paris meeting by bringing together country representatives from the Asia-Pacific region for a technical workshop and health accounts meeting. Experts from OECD as well as WHO headquarters and regional offices (SEARO and WPRO) are also present. The network of country experts has been an important factor in pushing forward the implementation of health accounts across the region and Kazakhstan could well benefit from exchanges with countries at a similar stage of economic and SHA 2011 development.

Main recommendations on data sources, methodologies and indicators

- A split between prescribed pharmaceuticals (HC.5.1.1) and over-the-counter medicine (HC.5.1.2) is encouraged. There would also be value in separating payments due to cost-sharing (HF.3.2) from other out-of-pocket (OOP) payments.
- Given the importance of households' out-of-pocket spending (OOP), exclusive reliance on the household budget survey to measure should be avoided. Data should be reconciled with information from the provider side.
- The use of the “Volume of services” (VOS) statistics and the “Finance and economic” (FAE) statistics can help improve spending estimates, particularly regarding out-of-pocket spending. The VOS statistics can also help in the breakdown of budget items in the federal and regional budgets to create improved allocation keys.
- Estimates of spending by private health insurance (HF.2.1) and the allocation to the appropriate functions should be in line with SHA 2011. Further analysis is recommended to determine whether there is some double counting of spending by voluntary health insurance (HF.2.1) and employers financing schemes (HF.2.3).
- For a sub-sector level analysis, the development of a breakdown of the Factors of Provision (FP) by provider is required. The starting point should be the individual provider categories for which solid data sources are available.
- In examining health sector productivity, the development of a more robust methodology combining health expenditure estimates, DRG-based activity information (for the hospital sector) and the development of standard international care quality measures should be investigated.
- At the disease-level of analysis, a first step in developing disease accounts should be the allocation of hospital spending aggregates into diagnostic categories.

Notes

1. Brazil, Russian Federation, India, Indonesia, China and South Africa.
2. This project forms part of the OECD/Republic of Kazakhstan Country Programme.
3. The Joint OECD/Korea Policy Centre is an international cooperation organisation established by a Memorandum of Understanding between the OECD and the Government of the Republic of Korea. The major functions of the Centre are to research international standards and policies on international taxation, competition, public governance, and social policy sectors in OECD member countries and to disseminate research outcomes to public officials and experts in the Asian region. In the area of health and social policy, the Centre promotes policy dialogue and information sharing between OECD countries and non-OECD Asian/Pacific countries and economies.

Chapter 1

Introduction and overview

Kazakhstan has seen remarkable economic progress since the early 2000s, driven largely by exploiting its large reserve of natural resources. Its current GDP per capita is now on par with many of the Central European members of the OECD. At the same time Kazakhstan has embarked on a series of health care reforms on health care financing and delivery. However, Kazakhstan still faces a number of challenges with many of its health outcomes lagging behind those of the OECD countries.

To help meet these challenges, accurate, timely and comprehensive estimates of financing and spending on health care over time are vital for a clear understanding of resource allocations and drivers in the context of current planning strategies and future sustainability. Adherence to a standard international framework can serve both national policy requirements as well as benchmarking against countries in a regional and international setting.

1.1. Demographic, economic and health system indicators

The Republic of Kazakhstan covers an area of 2.7 million square kilometres, making it the ninth largest (and largest landlocked) country in the world. With a population of only around 17.8 million (MNE, 2016), Kazakhstan has one of the lowest population densities in the world. This, combined with an evenly-balanced urban to rural split (55% of the population were classified as urban dwellers in 2014) counts as an important country-specific factor with a significant impact on the access, organisation and financial sustainability of health care for the population.

The population of Kazakhstan is still relatively young, with those under 15 accounting for almost 28% of the population – a full ten percentage points above the OECD average. While life expectancy at birth has increased rapidly over the last ten years in Kazakhstan (up from 65.9 years in 2005 to 71.6 years by 2014), it is still below that of all OECD countries and remains almost nine years below the OECD average. Furthermore, a large disparity in longevity exists between men and women (67.1 years for men and 75.9 years for women¹). However, in terms of health expenditure cost-drivers, demographic changes and population ageing are expected to have less of an impact in the medium-term compared to the effect of economic and income growth.

Indeed, Kazakhstan has experienced very rapid economic development over the last decade or so. The most recent 5-year average real GDP growth in Kazakhstan measured 7.7% (compared with only 0.6% on average across the OECD). However, growth in the economy of Kazakhstan is very reliant on the exploitation and export of its natural resources, rather than based on labour productivity and technology. While GDP growth has been susceptible to fluctuating commodity prices in more recent years, the oil and gas sector was responsible for around half of real GDP growth between 2000 and 2005.

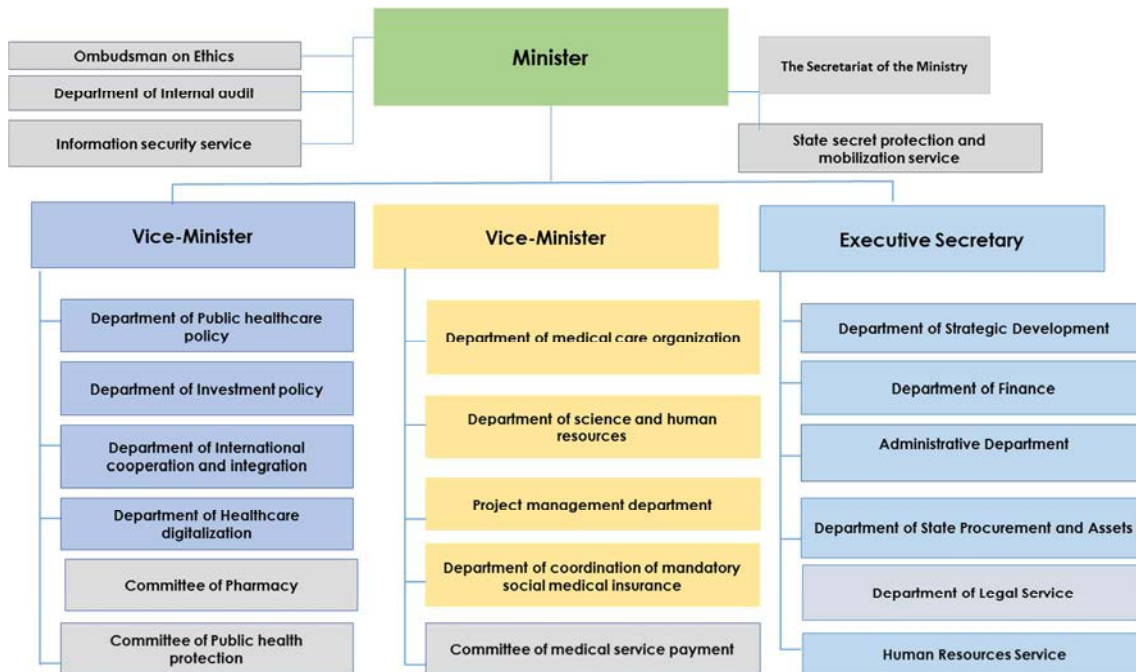
Therefore, while Kazakhstan ranks as an upper middle income country with GDP per capita of around USD 13 600², the average salary is around USD 675 per month (2014). The labour market also has a distinctive structure with around 2.2 million of the workforce employed informally. The relatively small formal sector, together with a sub-optimal tax system³, means that payroll tax revenues are reduced and general government expenditure constitutes a relatively low 22% of GDP (compared with 42% in OECD). This in turn is among the major factors contributing to the low overall public spending on health care as a share of GDP in Kazakhstan.

Since gaining independence from the former Soviet Union in 1991, Kazakhstan has pursued ongoing reforms of its health care system. However, as a relic of the former Soviet-style organisational structure, the level of resources in the health system has remained high – albeit the financial resources to support such an infrastructure have been limited. There are 4.0 doctors and 6.0 beds per 1000 population (MNE, 2014) in Kazakhstan compared with averages of 3.3 and 4.8 respectively in OECD countries. In terms of financial resources, health expenditure as a share of GDP was 3.0% in 2013, and per capita spending was around a fifth of the OECD average: USD 733 compared to an OECD average of USD 3453⁴). As such, relative wages in the health sector are low compared to OECD countries - the ratio of a doctor's salary to the average salary in Kazakhstan is close to 1.0, compared to an OECD average of around 2.2.

On the other hand, the health care sector is afforded high priority with the Ministry (Figure 1.1) issuing a State Program for Healthcare Development⁵. These programmes, which also contain a complex set of measures on cross-sectoral collaboration, have been cited as an

important factor in the improvement of a number of population health outcomes in recent years.

Figure 1.1. The structure of the Ministry of Healthcare of the Republic of Kazakhstan



Source: Ministry of Health, Kazakhstan.

In addition to increases in life expectancy, maternal mortality rates have dropped more than four-fold from 11.7 deaths per 100 000 births in 2000. At the same time, the infant mortality rate almost halved from 18.8 deaths per 100 000 births in 2000 to 9.7 by 2014. On the minus side, adult mortality rates remain high, especially for men: 324 deaths per 100 000 for men and 147 for women⁶. Similarly, despite progress, there are still 135.6 registered TB-infected patients per 100 000 population⁷ and HIV incidence increased significantly from 345 cases in 2000 to 1994 in 2014⁸. Finally, deaths from injuries and suicides are excessive in Kazakhstan with the latter almost three times higher than the OECD average.

In summary, despite progress in terms of health outcomes, the governance of the health care system as a whole still tends to be characterised by non-explicit declarations and redundant regulation. For example, the SGBP Government's Decree describes the forms of medical care rather than specific guarantees while the MOH Decree links the size of the population served by medical organisation to the number of beds and doctors. The planned introduction of Statutory Health Insurance (SHI) and the set of other measures covered by the new State Program for Healthcare Development are intended to resolve some of these issues.

1.2. The System of Health Accounts 2011

The System of Health Accounts 2011 (SHA 2011) (OECD, Eurostat and WHO, 2011) provides a National Health Accounts (NHA) framework to systematically measure the flows of funds (from both public and private sources) through the health system by tracking the revenues of the financing schemes purchasing services and goods right through to the final

use by type of service and by beneficiary characteristic. Knowing how much is spent on what type of health care, where, by whom and for whose benefit is essential in determining a more sustainable, equitable and efficient allocation of the available resources. In addition, monitoring changes over time and how patterns differ from other countries is key to a better understanding of the health system.

The information gained from a set of health accounts can provide vital evidence in making policy decisions and help meet the policy objectives of the health system, such as in resource allocations or reductions in out-of-pocket spending or guiding and monitoring reforms in the health system. Furthermore, linking of health accounts data with non-financial information (such as activity or outcome data) can provide information on such aspects as productivity and efficiency in the health system.

While the development of health accounts has a long history in some high-income countries (e.g. France and the United States have had health expenditure accounts for many decades) the development of a standard international framework is relatively new. The System of Health Accounts was first published in 2000 by the Organisation for Economic Co-operation and Development (OECD, 2000) and over subsequent years a large majority of OECD countries started to harmonise their health care reporting to the standard framework of tables and indicators. In addition, the Producer Guide (WHO, World Bank and USAID, 2003) was based heavily on the concepts and definitions of the OECD SHA manual and geared towards low and middle income countries, introducing some additional dimensions around sources of financing and beneficiaries. The experience built up over the previous ten years or so, coupled with the needs to respond to changing health systems around the globe, led to the development of a revised version of the framework by OECD, European Commission and WHO – published in 2011.

What questions can SHA 2011 answer?

SHA 2011 has been developed to answer and respond better to key health policy questions, including the following:

- Where do the resources in the health sector come from?
- Where do the resources go?
- What kinds of services and goods do they purchase?
- Who provides what services?
- What inputs are used for providing services?
- Whom do they benefit?

The role of health accounts?

SHA 2011 can provide a range of data and indicators for a variety of policy purposes, for example:

- Benchmarking and monitoring trends over time
- International commitments and reporting
- Sustainability and fiscal space
- Development of indicators linking expenditure with non-expenditure data
- Forecasting and monitoring over time

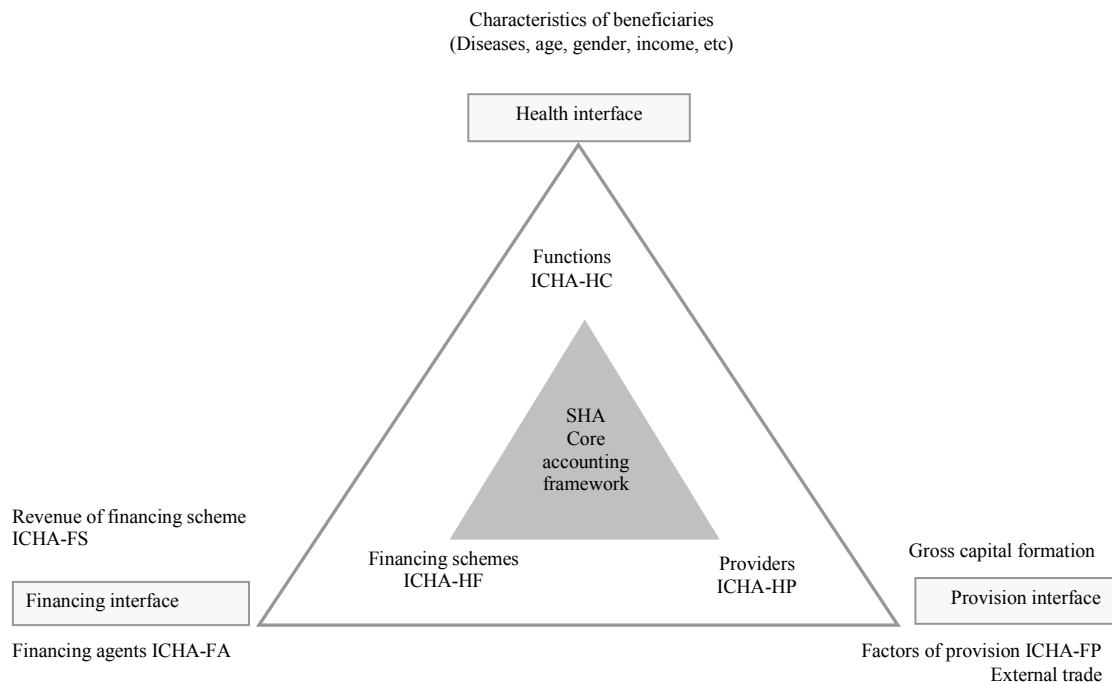
What boundaries does SHA 2011 include?

The principle aggregate of health accounts, namely current health expenditure, encompasses all final consumption expenditures for activities whose primary purpose is to restore, improve, and maintain health during a defined period of time. This definition applies regardless of the type of institution or entity providing or paying for the health activity. In addition, health expenditures are comparable across time and space, allowing evaluation of changes in health expenditures over the years and of differences in experience among different geopolitical entities.

What are the key dimensions of SHA 2011?

SHA 2011 comprises a set of dimensions that enable the systematic tracking of the flow of resources in a country's health system (Figure 1.2). SHA 2011 takes into account both public and private sector activities in health and provides key inputs into the design, implementation, and evaluation of health policies.

Figure 1.2. The core and extended accounting framework of SHA 2011



Source: OECD/WHO/Eurostat (2011), *A System of Health Accounts: 2011 Edition*, <http://dx.doi.org/10.1787/9789264116016-en>.

Functions are the categories of goods and services consumed, including inpatient services, ambulatory services, public health interventions, and so forth. In an accounting sense, the functions relate “to the type of need a transaction or group of transactions aims to satisfy or the kind of objective pursued”.⁹ On the expenditure side, they deal with the question “for what purpose”.

Table 1.1. The classification of health care functions at the first-digit level

Health care function – ICHA-HC
HC.1 Curative care
HC.2 Rehabilitative care
HC.3 Long-term care (health)
HC.4 Ancillary services (non-specified by function)
HC.5 Medical goods (non-specified by function)
HC.6 Preventive care
HC.7 Governance and health system and financing administration
HC.9 Other health care services not elsewhere classified (n.e.c.)
Memorandum items: reporting items
HC.RI.1 Total pharmaceutical expenditure
HC.RI.2 Traditional complementary alternative medicines
HC.RI.3 Prevention and public health services (according to SHA 1.0)
Memorandum items: health care related
HCR.1 Long-term care (social)
HCR.2 Health promotion with a multi-sectoral approach

Source: OECD/WHO/Eurostat (2011), *A System of Health Accounts: 2011 Edition*, <http://dx.doi.org/10.1787/9789264116016-en>.

Health care providers are entities that receive financial resources and use those resources to produce health goods and services. They include public and private hospitals, clinics, nursing homes, community health centres, private practices, and others. The classification is exhaustive such that it covers not only those organisations whose primary purpose is the provision of health care goods and services but also secondary providers (rest of economy) that provide health care services and goods in addition to another primary activity. A special class within the “rest of economy” category refers to households as a provider of home care services.

Table 1.2. The classification of health care providers (at the first-digit level)

Health care providers – ICHA-HP
HP.1 Hospitals
HP.2 Residential long-term care facilities
HP.3 Providers of ambulatory health care
HP.4 Providers of ancillary services
HP.5 Retailers and other providers of medical goods
HP.6 Providers of preventive care
HP.7 Providers of health care system administration and financing
HP.8 Rest of economy
HP.9 Rest of the world

Source: OECD/WHO/Eurostat (2011), *A System of Health Accounts: 2011 Edition*, <http://dx.doi.org/10.1787/9789264116016-en>.

Financing schemes are the main “building blocks” of a country’s health financing system: the main types of financing arrangements through which health services are paid for and obtained by people. Examples include direct payments by households and third-party financing arrangements, such as social health insurance, voluntary insurance, etc. Although the financing schemes in the SHA 2011 framework are key for the purchasing of health care, they also include the rules for other functions, such as the collection and pooling of the resources of the given financing scheme.

Table 1.3. The classification of health care financing schemes (at the second-digit level)

Health care financing schemes – ICHA-HF	
HF.1	Government schemes and compulsory contributory health financing schemes
	HF.1.1 Government schemes
	HF.1.2 Compulsory contributory health insurance schemes
	HF.1.3 Compulsory Medical Saving Accounts (CMSA)
HF.2	Voluntary health care payment schemes
	HF.2.1 Voluntary health insurance schemes
	HF.2.2 NPISH financing schemes
	HF.2.3 Enterprise financing schemes
HF.3	Household out-of-pocket payment
	HF.3.1 Out-of-pocket excluding cost-sharing
	HF.3.2 Cost-sharing with third-party payers
HF.4	Rest of the world financing schemes (non-resident)
	HF.4.1 Compulsory schemes (non-resident)
	HF.4.2 Voluntary schemes (non-resident)

Source: OECD/WHO/Eurostat (2011), *A System of Health Accounts: 2011 Edition*, <http://dx.doi.org/10.1787/9789264116016-en>.

Revenues of the financing sources classify and measure the mix of revenue sources for each financing scheme (for example, social security contributions used to fund the purchases by social security schemes and grants to sustain the non-profit organisation schemes). Measurement of the revenue sources of each financing scheme, as well as for the system as a whole, provides essential information to policy makers, particularly on the mix of public and private expenditures.

Table 1.4. The classification of revenues of health care financing schemes (at the first-digit level)

Revenues of health care financing schemes – ICHA-FS	
FS.1	Transfers from government domestic revenue (allocated to health purposes)
FS.2	Transfers distributed by government from foreign origin
FS.3	Social insurance contributions
FS.4	Compulsory prepayment (other than FS.3)
FS.5	Voluntary prepayment
FS.6	Other domestic revenues n.e.c.
FS.7	Direct foreign transfers

Source: OECD/WHO/Eurostat (2011), *A System of Health Accounts: 2011 Edition*, <http://dx.doi.org/10.1787/9789264116016-en>.

Factors of Provision can be viewed as the valued inputs used up in the process of the provision of health care. The boundary of health care determines the boundary of health care provision and by implication the factors of provision by provider. Provision involves a mix of factors of production – labour, capital and materials and external services – to provide health care goods and services. It refers not only to health-specific resources but also to the non-health specific inputs needed to generate health services, all of them equally important for efficiency purposes.

Table 1.5. The classification of factors of provision (at the first-digit level)

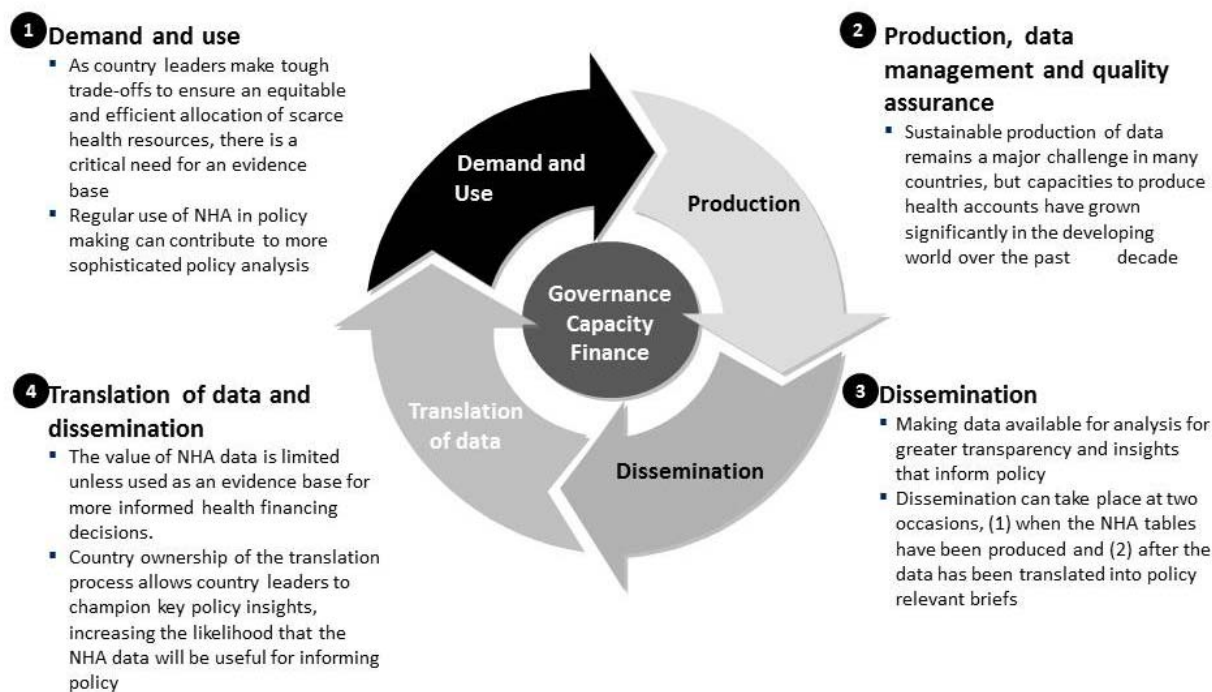
Factors of provision – ICHA-FP	
FP.1	Compensation of employees
FP.2	Self-employed professional remuneration
FP.3	Materials and services used
FP.4	Consumption of fixed capital
FP.5	Other items of spending on inputs

Source: OECD/WHO/Eurostat (2011), *A System of Health Accounts: 2011 Edition*, <http://dx.doi.org/10.1787/9789264116016-en>.

1.3. The cycle of health accounts production

Experience from countries has shown that the successful institutionalisation of health accounts requires a cycle of activities to be implemented beyond the simple production process. In this way, the accounts respond to as well as inform the policy making and budgetary cycles. The framework (Figure 1.3) developed by the World Bank in “Creating Evidence for Better Health Financing Decisions: Strategic Guide” (Maeda et al., 2012) for institutionalisation points to three elements that are essential in the cycle: the governance structure, the capacity and the financing.

Figure 1.3. Framework for institutionalisation of National Health Accounts



Source: Maeda, A. et al (2012), “Creating Evidence for Better Health Financing Decisions: A Strategic Guide for the Institutionalization of National Health Accounts”, *Directions in Development –Human Development*, World Bank, <https://openknowledge.worldbank.org/handle/10986/13141>.

The governance structure provides a framework to engage the key stakeholders in the various steps of the cycle – from production through to demand and use and feeding back again. Various models have been adopted by OECD countries, in the sense that no one model fits all and can be dependent on the level of economic development as well as the existing organisational structures with the health system¹⁰. For example, while many OECD countries, such as the United Kingdom, Norway, Poland and Germany house the production in national statistical offices (with varying degrees of political independence), the link with the ministries of health is usually strong. Other governance models entail either production responsibility within the ministry itself (e.g. France, Spain and Mexico) or in a closely aligned technical health agency (e.g. in Canada and Australia). Finally, countries like Korea and many non-OECD countries often out-source health accounts production to academic or non-governmental agencies where there is resident expertise. In all cases, the success of the production cycle is dependent on the appropriate capacity at each stage to produce and apply the health accounts. The final key factor is the adequate long-term financing in place, often with the appropriate legal basis, to ensure the sustainability of the whole process.

Notes

1. Homogeneity in health outcomes is an important policy concern.
2. Kazakhstan devalued its currency in 2014 and 2015. Figures here are based on pre-devaluation figures to remove some of the effects of recent exchange rate movements.
3. Reforms of the tax system reform are currently in progress.
4. Figures are based on Shoranov et al. (2015) and adjusted by OECD. See Chapter 6.
5. There are only a few State Programs in Kazakhstan.
6. WHO, 2014.
7. WHO, 2014.
8. Committee of Statistics, 2014.
9. System of National Accounts 2008, 2.42.
10. A further discussion of the various governance models and their application to Kazakhstan is included in Chapter 3.

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Chapter 2

The health financing system in Kazakhstan

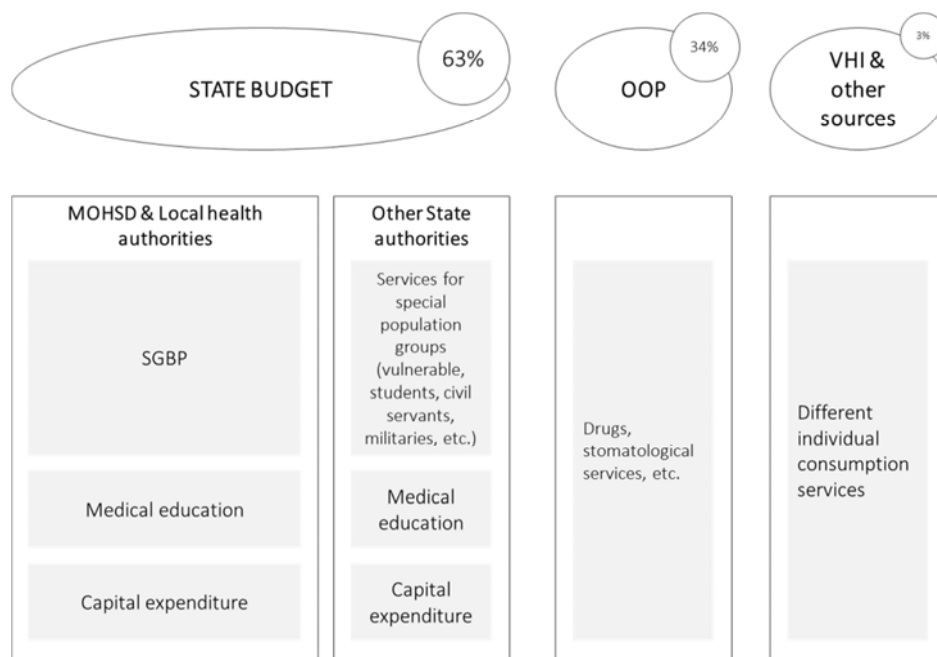
Financing of health care services in Kazakhstan is predominantly from federal and local budgets, but with high and rising out-of-pocket spending, particularly on pharmaceuticals and dental care. Overall public allocations to health may be on a par with some OECD countries at around 10% of total government spending but as a share of the economy this is still low.

This chapter provides an overview of the financial flows from the Ministry of Health to the local level and the basket of services provided. The various mechanisms in place in terms of budgeting and financing are described to give a context to the later chapters on data sources and methodologies.

2.1. Overview of financing of health services in Kazakhstan

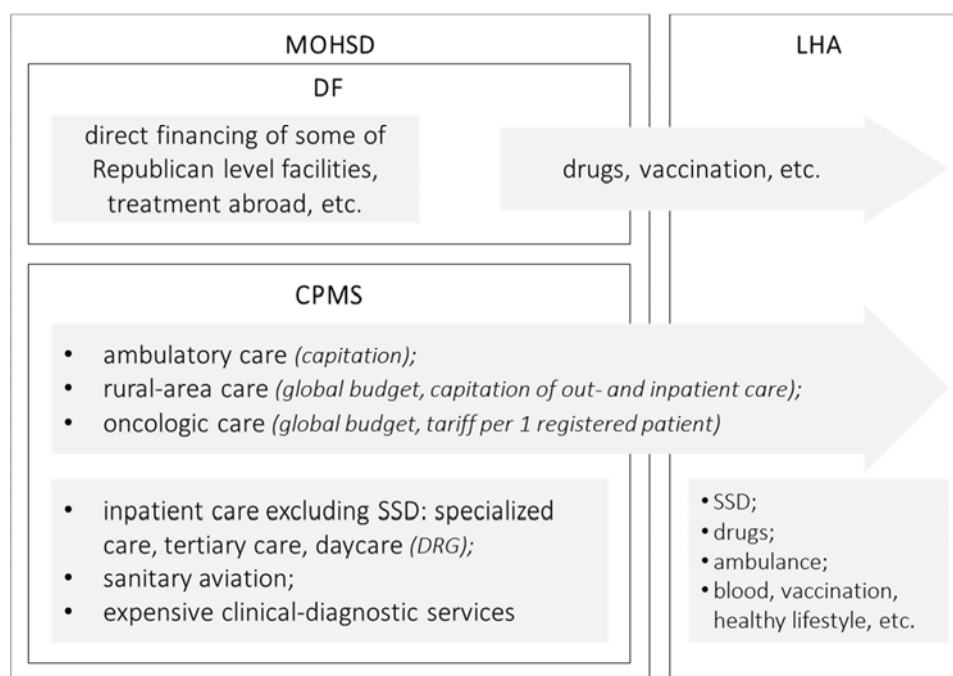
The state budget and private households' own funds are by far the two most significant funding sources for health care in the Republic of Kazakhstan (RK). In 2014, together they accounted for more than 95% of total health spending with the state covering 63% of total health expenditure¹ and out-of-pocket payments a third of the total. The remainder was made up from a mixture of other sources – Voluntary Health Insurance, enterprises' funds and external sources (Figure 2.1).

Figure 2.1. Financing of health services in Kazakhstan



The state finances health care out of both the federal and local budgets. As of today, the state budget allocated to health care needs is drawn from general taxation revenues, constituting around 10% of total government spending. Although below the OECD average of around 15%, it is comparable with OECD countries such as Hungary, Greece and Latvia. However, in terms of the share of the economy, government spending on health in Kazakhstan is very low – at around 1.8% of GDP for current expenditure. At the same time, the importance of out-of-pocket expenditure has seen an increase recently, rising from 30% of health expenditure in 2010 up to 34% in 2014.

The majority of the budget for health is disbursed via the Ministry of Health (MOH) and its branches at the oblast/city level (Local Health Authorities, LHA). The MOH has two financing units: the Department of Finance (DF) and the Committee of Payment of Medical Services (CPMS). These two finance (a) the State Guaranteed Benefit Package (SGBP, Figure 2.2), which provides a basket of free health care services for everyone in RK, and (b) collectively consumed health goods.

Figure 2.2. Financing institutions and mechanisms for the State Guaranteed Benefit Package

The Department of Finance is responsible for the financing of medical education and capital investments, as well as certain parts of the SGBP, for example, treatment abroad, reimbursement of the health providers at a state level (e.g. the Republican Psychiatric Hospital, Leprosarium, AIDS Centre, etc.), and drugs provision. All of these activities are financed either through direct payments to health care providers, or via earmarked allocations to the LHA.

The CPMS was established in 2009 and intended to be a more ideological “Single Payer” body, pushing forward health care governance and financing reforms, such as enhancing the level of autonomy of health facilities, introducing DRGs and so on. It also finances a significant part of SGBP:

- Regular inpatient cases treated within urban-based multi-profile hospitals (excluding TB, psychiatry/narcology (drug abuse), infection, HIV/AIDS, dermato-venereology, oncology). This category of cases is provided in the form of specialised care, day care and tertiary care and reimbursed under a DRG-based system introduced in 2012. The payments are made directly from CPMS to providers via its 16 regional branches.
- Ambulatory care and care provided in rural areas. Both are based on capitation adjusted according to a set of coefficients. In rural areas, a global budget mechanism is implemented, such that earmarked allocations are applied to local budgets.
- Oncological care is financed under a global budget mechanism with a tariff bound to the number of registered (attached) patients. An earmarked allocation is applied to the local budget.
- Air ambulance service for remote areas and urgent/severe cases.
- High-cost diagnostic procedures (e.g. MRI, angiography, etc.) are covered for some vulnerable sections of the population, in addition to the capitation payments.

- For hospitals reimbursed under DRG-based payments, CPMS also finances the leasing of medical equipment under certain specific price boundaries.

In general, CPMS-financed activities can be characterised as more progressive in comparison with the rest of the health system financing. This is based on its leading role in the development of a competitive environment, efforts to promote efficiency, and the introduction of modern budgeting and payment mechanisms.

The model implemented in Kazakhstan in respect of CPMS deserves some further recognition. It represented a significant move away from the total budget-line financing model inherited from the Soviet era to a much more modern system of financing, using a small but efficient institution, which has steadily grown to increase its coverage and role. The introduction of the various innovations has typically been preceded by pilot projects with the logical continuation of these efforts being the envisaged transformation of the CPMS into the Social Health Insurance Fund (SHIF). Although the particular implementation has had some limitations which are discussed later, the whole concept and strategic vision are noteworthy.

The LHA are represented by the local entities, one per each administrative unit, under the direct responsibility of the Governors' or so-called *Akims*' offices and hence not directly accountable to the MOH. The functions of the LHA focus mainly on (a) financing some parts of the SGBP and other expenses at the local level, and (b) organisation of health care provision, ranging from the licensing of health care providers to inspection of their activities. With the introduction of the SHIF, the financing function is expected to shift gradually to this institution. As of today, LHA finances:

- ambulance service: according to the number of calls (departures), but within a fixed historical budget
- treatment of the socially significant diseases (SSD) - includes all items excluded from CPMS jurisdiction: TB, psychiatry/narcology (drug abuse), infection, HIV/AIDS, dermato-venereology. The payment approach varies for the different disease categories and is discussed under Section 2.2
- ambulatory drugs provision (including vaccination)
- public health promotion programmes (except the National Institute of Health Promotion, which is funded directly by MOH)
- palliative care
- provision of blood and its components for local level health facilities
- final distribution of capital expenditures and all other earmarked allocations mentioned above. An implementation of demand-based approach for capital investments planning and distribution is highly desirable, whether it is Master Plans² or any other instrument
- other budget lines, including a set of actions under the State Healthcare Development Programme's event plan (either previous one – “Salamatty Kazakhstan” or present – “Densaulik”).

In addition, several other government ministries or agencies play a role in the financing and provision in certain specific areas of the health care system. The Ministry of National Economy (MNE), for example, has responsibility for the Sanitary-Epidemiological Service which covers various public health activities concerning the spread of infectious disease (including surveillance), and the registration of toxic and harmful substances. The responsibility for the financing and organisation of the Sanitary-Epidemiological Service

shifted to the MNE from the Ministry of Healthcare (MOH) under the 2011-2015 “Salamatty Kazakhstan” in an attempt to improve the management and effectiveness of the service.

Other ministries involved in health care include the Ministry of Education which is responsible for some health services related to education providers, while the Ministry of Defence, Ministry of Internal Affairs and the President’s Office each have their own health facilities. In the latter case, this is a legacy of the old Soviet era guaranteeing civil servants separate health service provision in well-equipped and financed facilities.

Households’ out-of-pocket spending (OOP) constitutes the other significant financial source to cover population health care needs outside of public coverage, namely to cover spending on pharmaceuticals and stomatological or dental care. In terms of other private financing, Voluntary Health Insurance (VHI) is generally not widespread in RK. It plays a mostly duplicative role, and is predominantly paid by employers as a way to provide faster access to quality health services for employees rather than providing additional services to the SGBP.

2.2. Budgeting and financing mechanisms

The DRG system in Kazakhstan

As mentioned above, regular inpatient cases excluding the SSD are financed through a DRG-based payment system. Prior to 2012, inpatient care was reimbursed under the Medical-Economic Tariffs system, based on reimbursement of the actual expenses, with detailed reporting from providers. The information collected served as a base for the construction of the resulting DRG system. As of today, the budgeting of DRG-financed hospitals still relies predominantly on historical budgets rather than reflecting actual population needs. Payments are adjusted according to:

- a set of coefficients: i.e. heating season duration, rural areas coefficient, ecological coefficient
- the results of inspections carried out both by CPMS (volume expertise) and the Committee for Control of the Medical and Pharmaceutical Activities regional branches (examination of lethal cases, provision of the SGBP for fee, complaints of patients, other quality defects control).

The expert process is supported by an information system (System for Management of the Medical Services Quality).

With regard to the costs of rehabilitative care, the DRG payment covers the inpatient period of rehabilitation with the costs of continuing rehabilitation covered through separate capitation payments. Additionally, any continuing inpatient rehabilitation, usually provided in separate Rehabilitative Centers, is also covered by CPMS, but under a set of fixed tariffs.

All day care cases are compensated at a rate of 25% of the equivalent case treated at inpatient level. As this seems to be a very approximate approach and thus leading to either an under- or over-provision of cases, it would be highly desirable to bring the reimbursement rates for day care closer to actual expenses.

There are also some incentive elements on the tariffs side intended to stimulate the development of tertiary services and the shifting of inpatient cases to day care and ambulatory surgery settings. For example, tertiary care services are reimbursed with an extra coefficient on top of the actual expenditure calculated by DRG office. During recent years, this has contributed to a dramatic increase in provision of such services. However, these

measures have not resulted in a similar rise in day care and ambulatory surgery. There are two possible explanations behind this: first, tertiary services are much more expensive and thus potentially more profitable for health care providers; second, the provision of ambulatory surgery may require the implementation of a set of additional services or facilities, for instance, the existence of an Anaesthesia and Intensive Care Department. So it might be concluded that for further development of these types of care, financial incentives should be supported by additional guidance from, for example, the LHAs.

Another reason for the slow uptake in day care services may be a behavioural factor. While at outpatient organisations there may be insufficient resources to promote such activity, for hospitals, an increase in day cases means a corresponding reduction in the volume of inpatient cases and the result that beds can remain unoccupied. There is then pressure from the health regulators to reduce the number of beds. In turn, existing legislation³ links the number of beds to the number of medical staff and therefore, to the organisation size and individual authority of the director, and so forth. The transformation of the inpatient beds into day care ones is therefore not seen as a strategic move for the director, as inpatient care is much more resource-heavy and thus better financed. This is a common for many countries, but the legal connection mentioned above can aggravate the issue.

One more issue regarding tertiary care is the design of the budget construction process, which substantially relies on providers' claims. In a given context of intense regulation and lack of financing, this approach can be complemented by a strong goal-setting function, sustained by unified methodology for demand assessment and distribution of the benefits.

Finally, the revision of the DRG legislation revealed an overly simplistic model with the ICD-10 disease code (or ICD-9, if a significant operation took place) as the only parameter for grouping. Neither additional clinical parameters, such as complications, associated diseases and use of expensive resources nor adjustments for extra-short or extra-long lengths of stay, are taken into account. The DRG system is supposed to be much more complex in order to match its objective in the estimation of actual expenses. It is strongly recommended to adopt one of the existing DRG systems, e.g. from Germany, Australia, or any other proven version.

As was found out in the current process of DRG construction, the data on actual expenses is collected manually and therefore for only a very small proportion of total treated cases and only for targeted disease groups. This can lead to inaccuracies in the reimbursement of expenses and in order to avoid this, a more representative data collection system should be established as soon as possible.

Also, the costs of depreciation should be taken into account in Kazakhstan's DRG implementation. The advantages of including depreciation deductions into service costs are the following:

- raising the awareness of managers regarding capital expenses
- improving the efficiency of capital use
- ensuring a proper combination of capital and labour
- increasing the ability to compare provider costs
- establishing a framework for fair competition (Langenbrunner and Precker, 2004).

At a minimum, spending on services provision and capital expenses should be effectively synchronised.

Capitation of ambulatory care

The capitation system used for ambulatory care reimbursement is complemented with the patient's right of free choice of primary health care (PHC) provider (which also holds for inpatient care) and so-called partial fund holding. The latter concept means that the PHC provider also receives funds for any specialised ambulatory services (i.e. diagnostic procedures, laboratory tests, consultations) and then subcontracts an appropriate provider of specialised ambulatory services. The most common organisational structure of PHC providers in Kazakhstan is the polyclinic, which provides both PHC and specialised care.

There is also an element of pay-for-performance for PHC level workers, which consists of the GP and nurses, social workers and psychologists. The federal budget defines a fixed tariff per population capita (it defines the name of this scheme – Incentive Component of Capitation) and transfers these funds to the LHA, which then distributes it according to a set of predefined unified rules. The size of the salary add-on depends on performance against a set of six indicators.

In general, as a measure of autonomy, there is also the possibility for all types of health providers to motivate their workers by paying for performance, or so-called differentiated payment for labour. The organisation is free to define the objectives and the set of indicators.

Global budget for rural area healthcare

Since 2013, a mechanism of global budget, based on capitation of ambulatory and inpatient care was introduced into rural areas. This was supported by institutional reform, which incorporated the network of health facilities into a single legal entity – the Central Rayon Hospital (CRH). The main intention was to achieve a shift of care and associated resources to the PHC level and periphery (small facilities in villages providing care “on site”).

It should be noted that the capitation mechanism is still linked to historical budgets; therefore, instead of defining the budget on the basis of a predefined tariff and the number of the population being served, the tariff itself is determined based on the available overall budget. Additionally, the implementation of this global budget system suffers from the shortcomings of historical differences in per capita financing between regions and rayons. This is also observed in the oncology global budget and ambulatory capitation.

Two other issues are also important to note: (a) the demarcation of the areas of responsibility between rural providers (CRH) and oblast-level providers (oblast hospital) and (b) the provision of a mechanism for effective mutual financial settlements. The former is particularly relevant in the case of the global budget for oncological care (see below). For such a system, the concept of “money following the patient” is a vital principle.

Global budget for oncological care

Oncological care in Kazakhstan is represented by a so-called vertical service, or 16 regional oncology dispensaries providing both ambulatory and inpatient care. The leading role belongs to the Kazakhstan Scientific-Research Institute for Oncology and Radiology (KazSRIOR) which provides only inpatient care.

Since 2012, a mechanism of global budgeting was introduced for regional dispensaries, based on the number of registered patients⁴. Separate budget lines cover all cancer-related inpatient, outpatient and drug expenditures. Nevertheless, the KazSRIOR is financed under

the DRG system, which as discussed above is not adequately developed to cover high-cost, different and complex oncological cases.

Socially significant/dangerous diseases (SSD)

Care for the so-called socially significant diseases (SSD) is also organised in a vertical system, and mostly provided in separate institutions – dispensaries. There are a set of obsolete financing mechanisms: reimbursement based on spent bed-days for psychiatry, number of beds for TB and so on.

Notes

1. Hereinafter – the health expenditure structure is represented as a percentage of both current and capital expenditure, as corresponding figures for the period of 2010-2012 do not follow SHA 2011.
2. Developed for Kazakhstan by Sanigest Internacional.
3. Decree No.238, from 07.04.2010
4. All the patients are registered within an information system – “Electronic Registry for Oncological Patients”

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Chapter 3

National health accounts of Kazakhstan

The development of National Health Accounts in Kazakhstan has been ongoing for more than ten years as part of various State Programs and often supported by external agencies. With the implementation of SHA 2011, new impetus has been given to create a sustainable process for the production and use of health expenditure and financing information.

This chapter reviews the history of national health accounts production in Kazakhstan and considers the cycle of institutionalisation from governance, production, dissemination and use of the information. Recommendations on how to strengthen the various processes and structures are provided.

3.1. Introduction

The development of National Health Accounts (NHA) in the Republic of Kazakhstan (RK) began in 2004-05 under the responsibility of the then Ministry of Healthcare (MOH) with the support of the World Bank (WB) – one of seven components aimed at health system strengthening. Using software developed by Medinform LLP, the MOH's partner in the field of IT, NHA production was based on a system of data reporting from each health care provider with the first collection in 2006. The data collection process was formalised by the Agency of Statistics by developing and approving a special form of departmental statistical reporting (No.19 "Report on health care expenditures").

The WHO, World Bank and USAID "Guide to Producing National Health Accounts" (WHO et al., 2003) was used as the standard for the NHA of RK development. The data collection, analysis of data sources and subsequent reports on health care expenditures were produced for the years 2004– 2006 according to this guide. The data itself was reported directly to the technical agency within the MOH rather than the Agency for Statistics resulting in what was considered as a rather burdensome (involving double-reporting by providers) and unreliable process. Overall capacity within the MOH at that time was deemed insufficient to warrant the continuation of the work.

In 2011, as part of the WB "Kazakhstan health sector technology transfer and institutional reform project", Oxford Policy Management (OPM) was contracted to assist in the development of a revised framework for the implementation of NHA in RK. The project partners, consisting of OPM, MOH and its technical agency, the Republican Center for Healthcare Development (RCHD), developed a new methodology for the NHA production with the objective of reducing the administrative burden on respondents and the use of stable and regular data sources. As part of the output of the WB Project, RCHD, together with OPM consultants, prepared two NHA reports in 2011-2012 (Kulzhanov et al., 2011).

At the beginning of the project, OPM proved crucial for providing methodological support. However, as knowledge and capacity increased, the input of OPM was reduced to more of a quality assurance role. Under the MOH 2012 programme, work began on NHA production based on the System of Health Accounts 2011 (SHA 2011) revised framework developed by experts from the Organisation for Economic Co-operation and Development (OECD), the European Commission and the World Health Organization (WHO). Recalculation of NHA tables for 2010, 2011, 2012 and production for 2013 and 2014 based on SHA 2011 was carried out, as well as the disaggregation of health expenditures at the regional level (14 oblast regions and two cities – Astana and Almaty) (Shoranov et al., 2014).

In both phases of development, the NHA production was established, first, under the State Program for health care reform and development of the Republic of Kazakhstan for 2005-2010, and then under the State Program for health care development "Salamatty Kazakhstan" for 2011-2015.

3.2. Organisation and governance of NHA in RK

The governance structure is a key component towards a successful and sustainable NHA process and the link towards the effective use of expenditure and financing information in the policy arena. The type of structure can be influenced by a number of factors such as the level of available financing, the institutional capacity and the location of resources and technical expertise. The various legal and budgetary frameworks that are put in place are also important in maintaining a strong organisational and governance structure.

Four different types of governance models have been identified (Maeda et al., 2012). The first three models are government mandated, with one or several steps in the institutionalisation cycle possibly outsourced to an external organisation, such as an academic institution or an independent research agency. The unique feature with the fourth model is the lack of ownership by government of any of the steps in the institutionalisation cycle.

Box 3.1. Models of governance frameworks for NHA production and use

1. Ministry of Health-led model whereby NHA production is mandated and owned by the Ministry, and data is translated and used by the Ministry
2. Ministry of Health-led but with multi-sectoral collaboration whereby NHA production is mandated and owned by the Ministry, and data is translated and used by multi-sectoral teams.
3. Multi-sectoral model whereby production is mandated and used by a multi-sectoral government agency, such as a statistical office
4. Independent research agency model. NHA are produced by an independent body with limited contact to government.

Source: Maeda, A. et al. (2012), “Creating Evidence for Better Health Financing Decisions: A Strategic Guide for the Institutionalization of National Health Accounts”, Directions in Development –Human Development, World Bank, Washington, DC, <https://openknowledge.worldbank.org/handle/10986/13141>.

The first model above best describes the situation in RK whereby the development of NHA is under the responsibility of the MOH. The results are made available and the data interpreted and used by the MOH. The MOH is therefore the client, purchaser and main beneficiary of NHA of RK.

The RCHD, a subordinate entity and the MOH’s research institute is contracted to compile and deliver the NHA on an annual basis. Within the RCHD, the Center for Economic Research (CER) performs this technical role. As of 2015/16 there exist two designated positions in CER for specialists to develop and compile the NHA. There has been a high fluctuation and turnover of technical staff; to guard against the potential loss of institutional knowledge, a strategy has been put in place to transfer expertise and experience through the clear documentation of processes, and a requirement for staff to provide technical support in the year following any move away from the NHA team.

OPM were instrumental in producing the NHA of RK in 2011. As capacity and knowledge have increased within RCHD, the role of OPM has been limited to that of overseeing and assuring the overall quality of the final reports. The overall capacity of the RCHD is generally increasing with the role of the RCDH looking relatively safe. Within the RCHD itself the work on NHA appears to remain a high priority, which needs to be matched within the MOH as a whole and in other areas of government.

To secure the sustainability of health accounts in RK, it is strongly recommended to establish the production of the NHA on a more secure legal basis, by including it as a mandatory annual activity within the “Health Code”, which covers the main law regarding the health care system in RK.

Since the development of NHA was under the framework of the joint project with the World Bank “Kazakhstan health sector technology transfer and institutional reform” the financing of that activity was stable. Financing for the period 2016 – 19 is provided under the State Health Development Program. A new WB programme to support the introduction of

NHA linked to the State Program might also provide a future possibility to get WB support for work on NHA.

In reviewing the governance structure, experience suggests that the embedding of the overall management within the health ministry is more likely to reflect their specific policies and priorities, which guides the production of the relevant data and in turn ensures the sustainable production and use of the NHA reports. Furthermore, the proximity to the ministry should ensure that there is suitable knowledge and expertise available.

On the other hand, the lack of involvement of other divisions within the MOH, or other ministries and government agencies (both at the state and local level) may restrict both the usefulness and therefore use of the reports, since the data and indicators are likely driven by MOH needs. The production of health accounts – in addition to health policy and public health expertise – requires strong accounting and statistical inputs. As such, the NHA team should reflect this and be able to fully understand the concepts and definitions of SHA (which are closely linked to National Accounts) as well as having access to other relevant data sources, beyond the direct domain and control of the health system. A closer collaboration between the NHA team and the Committee for Statistics with regards to data use, discussions of methodological concepts and any possible future work on supplementary accounts is recommended.

For the production of and, more importantly, for its wider dissemination and applicability, the NHA in RK could benefit from a broader based Steering Committee. This would entail wider participation from the ministry itself, in addition to representation from the Committee for Statistics and other relevant stakeholders. Recent experience from the United Kingdom and the Republic of Ireland in their projects to establish SHA 2011-based health accounts has seen close cooperation from the relevant government agencies (and external institutions – academic and international bodies) and has resulted in wider acceptance and legitimacy of the resulting reports.

3.3. The production process of NHA in RK

The following section provides a description of the cycle currently in place to collect data and compile the NHA in RK, including an indication of the timelines and resources (human and other) used in the process as well as the tools used (databases, internal software) to deal with the extraction, linkage and storage of data sources.

Currently the production of the health accounts is undertaken by the NHA team, which consists of two specialists (FTE) at CER in the RCHD. The process can be described by the following three broad stages:

- data collection
- compilation and calculation of the health accounts
- production of the final tables and reports.

It should be noted that the Committee for Statistics of MNE are also working on the development of a Satellite Health Account. It is recommended that activities around the production process of both NHA and the Satellite Health Account (data sources, methodologies, etc.) should be harmonised for mutual benefit.

Data collection

The production of NHA in RK primarily uses data produced and published by the Ministry of Finance, the MOH, the Ministry of National Economy (Committee for Statistics), the National Bank of Kazakhstan, Local Health Authorities and also information from the Creditor Reporting System (CRS) database of Development Assistance Committee (DAC) of the OECD.

The data collection process commences on 30 January for the previous reference year, when the first budget statistics are released by the Ministry of Finance, and is completed around mid-July. Additionally, data from the OECD CRS concerning external donors is retrieved by the end of the year. The approximate data collection schedule is shown on Table 3.2.

Table 3.2. NHA data collection schedule

Source	Data collected	Date of availability
Ministry of Finance	BER - Budget execution report (state and local budgets)	30 January
	Statistical form «Financial and economic activities of health care organisations» (so-called “Socfin zdrav”)	30 June
Committee for Statistics of the Ministry of National Economy (MNE)	Statistical form “The volume of services provided by health care organisations” (so-called “Bulletin”)	16 May
	Households survey “Households income and spending” (includes population income and spending information as well)	16 April
	“Retail and wholesale trade” by region	30 October
	Trends in the basic socio-economic indicators	30 June
National Bank	Summary report on insurance payments under insurance (reinsurance) organisations	30 January
	Summary report on insurance premiums under insurance (reinsurance) organisations	30 January
MOH – Committee Purchasing Medical Services (CPMS)	CPMS financing plan execution by region, facility and care type (budget programme #0111)	30 January
MOH – Department of Finance	Information on execution of the earmarked allocations to the local budgets on SGBP provision and extension (Budget program #010)	30 January
WHO	Information on health expenditure for OECD countries, countries with high-medium level of development and other countries	30 September
Local health authorities	Local financing plan execution by budget program, facility and care type (set of budget programs)	30 June
	Information on expenditure on ambulatory care and rural health care provision by facility and care type (budget program #039)	30 June
OECD Creditors Reporting System	Data on donor financing	1 December
	Statistical form “Financial and economic activities of health care organisations”	15 July
Committee for Statistics of the Ministry of National Economy – regional branches	Statistical form “The volume of services provided by health care organisations”	15 July
	Households survey “Households income and spending”	15 July
MOH – Department for the Organization of Medical Care	Statistical Yearbook of MOH	30 June
	Statistical forms	30 March

Over time, the process of data collection can alter, primarily due to general reforms in the health care system as well as developments and new features within the NHA itself. For example, the introduction of capitation payments in rural areas in 2013 moved the financing distribution role from the Committee for Purchasing of Medical Services (CPMS) to the Local Health Authorities (LHAs), such that an additional data source, “Information on expenditure on ambulatory care and rural health care provision by facility and care type”, was required. The calculation of productivity indicators and data disaggregation from 2013

onwards also necessitated an additional data collection from the Committee for Statistics, including its regional branches.

Looking ahead to future challenges, the introduction of the Social Health Insurance (SHI) will necessarily lead to a review in the reporting requirements and mechanisms with an enhanced role envisaged for the state and branch offices of the new Social Health Insurance Fund. The NHA production process will thus need to adapt to these changes.

Currently, the NHA team faces a significant problem relating to the incompleteness of the data provided by LHAs. It is therefore recommended to establish an appropriate official reporting form requiring data to be submitted by LHAs in a timely manner to the MOH. Generally, there is a balance to be struck such that it is recommended not to create new tools for data collection, but to utilise and improve existing information flows.

Another difficulty is related to the Budget Execution Report (BER) which is currently provided by the Ministry of Finance in only a reduced version, i.e. only at the fifth functional group level, which is restricted to the health care sector. As there are a number of budget items related to health expenses across other functional groups (e.g. education, social affairs), this is deemed to be insufficient for complete NHA construction. So it is recommended that the Ministry of Finance should make the full version of BER available to the MOH/NHA team.

Finally, it would be beneficial for NHA analysis and results interpretation to receive the data from the household survey disaggregated by income (at least, with results represented by deciles or quintiles).

Compilation and calculation of the health accounts by the RCHD

The compilation of the accounts is performed during the period from August through early November by the RCHD. After finalising the NHA tables, the data is further disaggregated and productivity indicators also calculated. The main compilation processes including the mappings and methodology are covered in detail in Chapter 5.

The transition to the SHA 2011 methodology caused the appearance of some new categories and changed the order of assignment of expenditures to some categories, resulting in a recalculation of the NHA tables for 2010-2013.

Currently, the NHA of RK compilation process and construction of standard cross-tables is mainly performed using MS Excel. The national health databases are used for extraction of some part of the data required. There is currently an assessment as to the possibility and suitability of using the WHO Health Accounts Production Tool (HAPT) software² for NHA 2015 production and, possibly, the Health Accounts Analysis Tool (HAAT) for analysis. The HAPT is primarily a data management tool which has been developed for low- and medium-income countries to implement health accounts in a standardised SHA 2011 format. It can be very useful in cases where the health accounts production is in an initial or early stage of development and the main data sources and allocation rules are relatively simple. As source databases become more complex and inter-linked, requiring sophisticated statistical and data management software, there may be a need to develop a more bespoke NHA database system, with the necessary flexibility.

This is the case for OECD countries. Here, country-specific solutions have generally been created, which typically depend on the nature and structure of the core data sources, the available IT infrastructure and IT skills of health accountants. Using generally a bottom-up approach to health accounts, Germany, for example, calculates individual spending items and

distribution keys in MS Excel but uses the functionality of database managing of MS Access to calculate the three core tables of health accounts. The database has been expanded to allow the allocation of health expenditure per provider by disease, age and gender. Austria uses a SAS tool to retrieve health-relevant transactions from public records and complements this with manual calculation in MS Excel for some transactions. All spending items are aggregated into a three-dimensional data cube for a time series back to 1990 in Excel. Similar approaches with varying level of complexity are applied in many other OECD countries.

Production of the final tables and reports by RCHD

The final report is released, translated and published by the end of the year. The latest includes the NHA annual report and an overview of health expenditures trends since 2010.

3.4. Cooperation between RCHD and other bodies

The Committee Purchasing Medical Services (CPMS)

The Committee for Purchasing of Medical Services (CPMS) is a division within the MOH responsible for the distribution of funds for service provision under part of the State Guaranteed Benefit Package (SGBP). Its role is coordinated with branches at the oblast and city level whereby health care providers are contracted and paid by the regional branches of the CPMS through allocations via the central committee.

The CPMS defines and manages the tariffs, rules and regulations concerning the purchasing of services. For the services (under the SGBP) various regional adjustments are made: for primary care this is based on a capitation payment with regional adjustments (e.g. due to climate, ecological zones, rural areas, etc.); for inpatient care, there is DRG-based payment system with regional adjusted coefficients. For the provision and payment of services outside of the SGBP, the CPMS cannot influence the tariffs charged. Payments regarding pharmaceuticals are outside the remit of the CPMS and instead fall under the responsibility of the Department of Finance of MOH and LHAs.

As part of the data transmission, all DRG-reimbursed health care providers in Kazakhstan have to transmit data on services, costs and diagnoses to the Republican Center of e-Health (RCEH)³. Each case submitted by the provider is checked by the local branch of the CPMS with payment made within 45 days. With the planned introduction of Social Health Insurance (SHI) under the State Program, it is envisaged that the new Social Health Insurance Fund (and its local branches) will play an increased role.

Regarding the involvement in the NHA production cycle, CPMS has historically not played a role in the process⁴ directly but acts as a key data provider to the RCHD in the form of the executed financing plans by region, facility and care type (Budget Program No.011). Currently the results of the NHA, in particular the regional health expenditure estimates, are not explicitly disseminated and discussed with the CPMS. The Committee carries out their own economic analysis (e.g. forecasting) to better plan and assess their work.

Oblast/city health departments

The principal role of the health authorities at the local level is to implement the overall state level policies and organise the provision of health care. In terms of financing and paying for health services of the population, there are two mechanisms; the contracting and payment of services financed through earmarked allocations from the Federal level and health services that are directly financed at the local level (see Section 2.1). In addition, CPMS regional

branches also are contracting and paying providers and services, but these activities should be considered as Federal-level spending.

The local budget covers primary care and part of hospital care covering the socially significant diseases (e.g. AIDS, tuberculosis, drug addicts, psychiatry, infections). The additional services, among others, covered by the local budget include payments for blood products, health promotion, emergency care and pathology.

All oblasts and city departments follow the same procedure: the overall budget requirement is prepared in May every year (for the following year) to be then approved by the Local Parliament (“Maslihat”) (representatives of central bodies); it is based on the historical budget projected forward to some extent with inflation; for different programmes there are additional budgets. For the health budget, every oblast has different needs (e.g. Astana has a high oncological demand, while there are environmental-related disorders in oblasts near the Aral Sea) which are considered by the MOH. After approval of the budget there is the contracting of both public and private providers (under the same procedure).

In terms of reporting requirements, each DRG-reimbursed health provider reports all types of expenses (as stipulated in the appendix in their delivery contract), as well as procedures and diagnoses per case. On a quarterly basis, reports on infrastructure are sent to the regional branches of the RCHE.

Although the health departments are the source of much of the data for the NHA, the involvement and awareness of NHA by the local health departments appears to be very limited. Given that breakdowns and usage of health care services are produced at the oblast/city level, the NHA reports themselves should be of interest and use to the local health departments to analyse regional differences. As such, an information campaign by RCHD/MOH to raise awareness of the NHA and highlight the importance of the regional level data could bring dividends in ensuring the quality as well as increasing the use of the NHA reports.

Committee for Statistics of the Ministry of National Economy

The National Accounts Division of the Committee for Statistics within the MNE is responsible for the production of the annual and quarterly estimates of GDP, including regional accounts as well as the Supply and Use and Input-Output Tables. In the context of NHA, the Committee for Statistics is predominantly considered as a data provider (see Table 3.1). At present there is little or no collaboration between the Committee and RCHD despite the use of the same data sources. There is, however, a general understanding of NHA and what it can provide in terms of policy-relevant information for the health sector.

Importantly, with regards to work that overlaps with the NHA, the National Accounts Division of the Committee for Statistics have been co-operating with the German Statistical Office (Destatis) and other institutes in a WB financed project “KAZSTAT: Strengthening the National Statistical System (2011-2017)”. Part of this project concerns the construction of Satellite Accounts. In this field of work they were consulted by Gert Ahlert (GWS Osnabrück). While the main focus of the work is around the construction of a Tourism Satellite Account, the first steps towards a Health Satellite Accounts have already been undertaken. This is important, as this project, too, uses the SHA 2011 as their basis to contemplate the creation of supply and use tables as suggested in Annex B of the SHA 2011 manual. Against this background, stronger cooperation between the RCHD and the National Accounts Division of the Statistical Committee is desirable. While the focus of the Health

Satellite Accounts lies on the production of health care good and services it is important to map this with the consumption side as measured in the NHA.

Finally, there are also some possible areas for cooperation in the development and use of health-specific data that could be of benefit to the RCHD in the reconciliation of both the government and private consumption. A fuller discussion is included in Chapter 4.

3.5. Communication strategy of the NHA in RK

The annual results of the NHA are translated into Kazakh, Russian and English and submitted by RCHD to MOH at the end of each calendar year according to the timeline established for official reporting (see Section 3.2). The latest results contain the full set of NHA tables, an NHA annual report and a separate overview of health expenditure trends since 2010. The annual report typically consists of the following sections:

- a review of the data sources and methodology
- a summary of health expenditures in the reference year covering:
 - health care financing schemes
 - health care service providers
 - health care functions
- trends in health expenditure since 2010
- health care spending by region
- productivity analysis
- conclusions.

The annual report is made available for public access under the responsibility of the MOH on its official website in the three languages at the beginning of the following year (i.e. the 2013 NHA Report was published at the beginning of 2015). In addition, the results from the NHA are communicated to the WB and WHO for publication in their respective reports and databases.

As a conclusion to the WB “Kazakhstan health sector technology transfer and institutional reform project”, a conference was held in November 2015 bringing together the main partners as well as heads or deputy heads from the local health authorities. The NHA project was presented with the main results and the post-project plans for the sustainability of the process.

A wider dissemination of the health accounts could benefit and strengthen the various stages of the NHA cycle. In general, the awareness of the MNE and other authorities external to health care system concerning the NHA could be increased. A greater buy-in to the NHA process from both data providers (at the state and the LHA oblast level of the CPMS) could be envisaged to foster a better understanding of their role and input into the final range of outputs. The LHA, in particular could be interested in the data disaggregated by oblast/city council included in the reports for their own analyses and productivity comparisons, etc. This in turn may lead to the provision of more accurate data as well.

In particular, collaboration with the Committee for Statistics within the MNE could contribute further to a strengthening of the methodology and making NHA results and indicators more relevant from the broader economic point of view. Enhanced collaboration

with the Committee for Statistics of MNE on NHA will also ensure the confidence from the side of MNE, potentially leading to wider usage of NHA for policy setting outside of the MOH. This is all the more relevant since there is also a Satellite Health Account being developed by the Committee for Statistics with many of the same data sources and of course national accounting concepts. It is therefore recommended to schedule activities on harmonisation of NHA and the Satellite Health Account development processes for the mutual benefit of both. From a user perspective it is important to be able to understand the different approaches and the potential policy uses of both.

The NHA results are not currently communicated extensively to outside bodies. Of the 30 different professional/provider associations, few currently have the capacity to discuss the issues raised in the reports although over time this may change. It is recommended that NHA results should be further disseminated to medical universities and researchers in the health field – both for educational purposes and for possible contributions and discussions around data sources, methodology and analysis.

Reporting of NHA results varies widely across OECD countries. Some countries restrict the direct national impact of the health accounts by submitting their health spending data as part of the Joint Health Accounts Questionnaire (JHAQ), the annual health accounts data collection of the three international organisations (OECD, WHO and EC) without actively engaging in communicating the results to a national audience themselves. Most countries, however, publish their results although the format and reach of these publications differs. It can range from simply making the raw data available on a website accompanied by a short press note, to the annual production of extensive analytical publications presented at press conference attended by senior government officials. The Canadian Institute for Health Information, for example, has created a National Health Expenditure Database (NHEX) which includes health expenditure figures for all core dimensions on a regional level and publishes detailed analytical reports and projections on health spending annually⁵. Elsewhere, DREES, the directorate of research, evaluation and statistics within the French Ministry of Health prepares a comprehensive analytical publication⁶ of health spending development and related trends on an annual basis which is presented in a high-profile meeting attended by the Minister of Health, as well as stakeholders from government, academia, provider and health professional associations. It is clear that greater political buy-in and involvement raises the profile and status of the health accounts reports.

In terms of international dissemination, in addition to the current submission of aggregate data to the WHO and WB, there is a recommendation for Kazakhstan to take part in the annual JHAQ. This would ensure the NHA of RK is subject to the same vigorous validation process and inclusion of the data alongside OECD members and key emerging economies in the OECD Health Statistics database and relevant publications.

3.6. Current use of NHA in policy setting

Currently, the NHA reports have primarily been used by MOH in relation to providing evidence for upcoming health care reforms. This has been particularly the case regarding the proposed Social Health Insurance (SHI) legislation from the perspective of analysing the health system financing structure. The re-introduction of SHI is part of a wider strategic plan of the President to establish Kazakhstan among the group of the 30 most advanced economies by 2050. This links to the second main advantage of aligning the NHA with the SHA 2011 methodology and boundaries to enhance its role as a benchmarking tool against other countries, primarily the leading industrialised nations of the OECD. Currently Kazakhstan spends very little on health care, much less than Estonia, the lowest spending comparable

OECD country. Chapter 6 presents the results of an adjusted set of Kazakhstan health accounts against OECD countries and other comparator countries.

In summary, NHA of RK can provide a simplified set of health expenditure and financing indicators which can be very important for international and national purposes, e.g. they can provide valuable input and support for annual budget negotiations with the Ministry of Finance. That said, the view is that there is little evidence of regular or widespread usage of NHA in RK in shaping health care policy in the MOH or indeed beyond. In that context, the usability of NHA results for politicians could certainly be improved by wider and higher profile releases, and the production of short executive summaries and policy briefs with key messages alongside the main NHA annual report.

In meeting this objective, there is a need to improve the accuracy and comparability of the statistical data (not only in NHA but in health statistics in general) that can assist in the development of health system indicators (e.g. Chapter 7). Currently, a number of deviations from the SHA 2011 methodology in the NHA of RK have been identified (in the following three chapters) and it is recommended that these should be implemented to improve the overall quality of the data. However, it is also important that country-specific spending items (e.g. identification of costs for medical training) should be maintained to respond to national policy concerns.

The timeliness of NHA in RK can also be improved with little additional effort by providing preliminary estimates (of both government and private spending) for year $t-1$ at only three months after the end of the reference period. It is an important issue for policy makers to have access to timely health spending data, particularly during the process of budget monitoring and budget setting negotiations.

Certain areas of development related to health accounts have been identified that can further enhance the usability and impact of the NHA of RK. Some of these have already been started, such as work on productivity measures – both at a national and regional level. Indeed, additional work at the regional level opens up some further possibilities, such as the linking with income information and identifying unmet needs. Related to this is the disaggregation of health expenditures by beneficiary characteristics (i.e. by disease, age and gender) to provide information on resource allocations and in the context of meeting future needs as demographic and epidemiological patterns evolve. Data availability initially at the hospital level should make this first step feasible.

Notes

1. Hereinafter – budget program numbers refer to 2015 codes.
2. <http://www.who.int/health-accounts/tools/HAPT/en/>.
3. Until 2014, the RCEH was a unit of the RCHD. Since 2014, it is a separate entity under MOH. So MOH has two system-level institutions – RCHD and RCEH.
4. However, as a result of ongoing reorganisation within the MOH at the time of drafting this report, CPMS was responsible for the NHA within the ministry.
5. <https://www.cihi.ca/en/spending-and-health-workforce/spending>.
6. <http://drees.social-sante.gouv.fr/etudes-et-statistiques/publications/recueils-ouvrages-et-rapports/recueils-annuels/comptes-nationaux-de-la-sante/article/les-depenses-de-sante-en-2014-resultats-des-comptes-de-la-sante>.

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Chapter 4

Reporting and data sources

National Health Accounts information is often collected and published in terms of a set of detailed cross-classified tables covering the main dimensions of functions, providers and financing in addition to information on revenues, factors of provision and capital spending.

This chapter reviews the current level of detail in reporting of the National Health Accounts of Kazakhstan in comparison with international data collections. It also reviews the current data sources across the different financing schemes, offering a set of recommendations where appropriate.

4.1. Reporting

The National Health Accounts (NHA) in the Republic of Kazakhstan (RK) is generally aligned with the concepts, boundaries and classifications of the System of Health Accounts 2011 (SHA 2011). In some instances, the level of reporting goes beyond the minimum international recommendations to provide a more detailed level of disaggregation which is important in the national context. This can refer to reporting items that are outside the scope of the core framework of SHA 2011 (e.g. capital spending, expenditure on education and research and development). This can also refer to a more detailed breakdown of existing SHA 2011 categories, e.g. a detailed list of speciality hospitals. Annex 1 provides an overview of the level of reporting in NHA of RK for the functional (HC), provider (HP) and financing (HF) dimension, as well as the additional classification of revenues of the financing schemes (FS) and factors of provision (FP). Chapter 6 presents recommendations as to how the official health spending figures of the NHA of RK can be adjusted to be more comparable to those provided by OECD countries.

In terms of the current level of detail, Kazakhstan is reporting beyond many OECD countries, both in terms of dimensions and categories within each dimension. For 2014, NHA of RK consisted of:

- the three core tables (HCxHF, HCxHP, HPxHF)
- revenues of the health financing schemes table (HFxFS)
- factors of provision (FP)
- a regional breakdown of health expenditure by function.

Most OECD countries are only able to provide the three core tables with less than half able to provide the revenues of the health financing schemes (HFxFS) table. For member countries of the European Union, the Commission Regulation (EU) 2015/359 implementing Regulation (EC) No 1338/2008 requires them to report only the three core tables. Among OECD countries, only Canada would appear to have a more extensive reporting system than Kazakhstan - Canada also regularly reports the capital table.

With regards to the level of detail in each health dimension, the NHA of RK is generally strong:

For **health care financing schemes (HF)**, NHA of RK covers all the important categories with the exception of non-profit institution financing schemes (HF.2.2) and a breakdown of household out-of-pocket spending (HF.3) into out-of-pocket spending with (HF.3.2) and without (HF.3.1) cost-sharing with other schemes. The latter is an important piece of information with regards to the comprehensiveness of the public benefit basket and can help to assess the impact of possible policy reforms. Beyond the SHA 2011 recommendations, NHA of RK provides a very detailed overview of public financing schemes to identify individual federal ministries at the fourth digit level of the HF classification.

For **health care functions (HC)**, NHA of RK covers most of the important categories and additionally includes expenditure categories on capital, education and research and development. The health accounts lack a breakdown of long-term care (LTC) expenditure and pharmaceuticals. While LTC currently plays a marginal role in health spending in Kazakhstan, a distinction between prescribed pharmaceuticals and over-the-counter medicines would be of greater importance regarding questions of coverage.

For **health care providers (HP)**, NHA of RK reports all relevant categories and includes additional categories to allocate the spending of the additional HC categories for capital, education and research and development. For some categories the level of detail is very precise, for example, a breakdown of specialised hospitals (HP.1.3) or ambulatory health care centres (HP.3.4).

Reporting of the **revenues of financing schemes (FS)** depends on the nature of the health system and the level of reporting of financing schemes (HF). NHA of RK appears to report all required categories to allow for a meaningful analysis of sources.

For the **factors of health care provision (FP)**, NHA of RK is at a high level of aggregation. To what extent self-employed professional remuneration (FP.2) is rightfully excluded would need a more thorough analysis. The factors of provision are however only calculated for an aggregate spending figure (and expressed as a share of spending) without a provider-specific breakdown. That said, the level of reporting is greater than for most OECD countries².

The **capital account (HK)** is currently not reported in the NHA of RK. Some of the additional HC categories should however be shifted into HK-categories as a starting point for some rudimentary reporting on the acquisition of assets.

The timeliness of reporting and publication of the NHA of RK appears to be very good. All three core tables and additional tables are compiled and published by the RCHD around 12 months after the end of the reporting year. This compares very favourably with OECD countries who report according to a 15-month deadline of the Joint Health Accounts Questionnaire (JHAQ)³. However, a number of OECD countries do publish their health accounts nationally prior to the submission to OECD. NHA of RK does not currently include any preliminary estimates of aggregate health spending figures. Due to increasing requirements from policy makers for timely data, an increasing number of OECD countries are producing preliminary estimates less than six months after the end of the reference period. NHA of RK should also consider following this practice.

4.2. Data sources

Like many OECD countries, NHA of RK primarily uses information from the financing schemes as the starting point for the construction of the three-dimensional core framework (HC, HP and HF).

For the public sector the main data sources are:

- Federal budget of the Republic of Kazakhstan (HF.1.1.1)
- Regional budgets of the 16 regions (14 oblasts and 2 cities) (HF.1.1.2).

For the private sector the main data sources include:

- statistics from the Central Bank of Kazakhstan for voluntary health insurance (HF.2.1)
- household budget survey for private out-of-pocket spending (HF.3) from the Statistical Committee of the Republic of Kazakhstan
- private consumption as measured in the National Accounts for private out-of-pocket spending (HF.3) from the Statistical Committee of the Republic of Kazakhstan

- the statistic “Volume of services delivered by health care organisations of the Republic of Kazakhstan” – Series 14 of social statistics, from the Statistical Committee for health spending from enterprise financing schemes (HF.2.3)
- the statistic “Financial and economic activities of health care organisations in the Republic of Kazakhstan” – Series 14 of social statistics, from the Statistical Committee for financing from the rest of the world (HF.4)
- the “Creditor Reporting System” from the OECD database on development assistance for rest of the world financing (HF.4).

As with most other OECD countries, NHA of RK uses additional data sources and information to allocate spending information from the financing scheme perspective to the other core dimension of health accounts, health care functions (HC) and health care providers (HP). The allocation methodologies are discussed in Chapter 5.

Outside of the core framework, NHA of RK uses a combination of different data sources to identify the revenue sources of financing schemes (FS) and relies exclusively on the “Financial and economic activities of health care organisations in the Republic of Kazakhstan” report from the Statistical Committee to identify the different factor of provision (FP).

Government schemes and compulsory contributory health care financing schemes (HF.1)

Data sources of the public (compulsory) financing schemes:

- Federal budget of RK (HF.1.1.1)
- Local budgets of the 16 regions (HF.1.1.2).

For 2014, the latest reporting year, compulsory contributory health insurance schemes (HF.1.2) did not exist in Kazakhstan. However, with the proposed introduction of Social Health Insurance (SHI), the vast majority of public spending will be reported under this item (HF.1.2.1). Additional categories of compulsory schemes such as compulsory private health insurance (HF.1.2.2) and Compulsory Medical Saving Accounts (HF.1.3) do currently not exist in the Kazakh health system. However, statistics from the Central Bank of Kazakhstan on insurance activity show that some compulsory private insurance schemes could potentially be classified as HF.1.2.2. This may refer, for example, to compulsory liability insurance for owners of motorised vehicles or accident insurance. Hence, further analysis is recommended as to whether these insurance branches finance some health care goods or services. Any indemnity payments to replace income or compensate for damages or pain suffered but not related to the consumption of health care goods and services should be excluded.

Federal budget of the Republic of Kazakhstan

The federal budget of RK is analysed and all relevant health spending line items are identified. Items are identified via a multi-numerical code where the first two digits identify the main purpose (05 for health) of the budget item. The relevant sections of the budget are provided by the Ministry of Finance around two months⁴ after the end of the reporting year which coincides with the calendar year in Kazakhstan. For each individual item the cash-value is used.

A similar approach is used in a number of OECD countries. However, this method can lead to some inaccuracies in the detection of health expenditure, and is dependent on the level of granularity of the budget line item. Some health care activities may be included in line items

that do not have health as the main purpose. For example, health services for prisoners might be hidden under a line item “maintenance costs for prison services” – a budget item not allocated to the main function “health” in budget terminology. On the other hand, there may be an overestimation of some “health” line items which include additional services e.g. related to social care.

The analysis of the budget needs to be done on an annual basis as line items and their contents can frequently change. Moreover, it is recommended to have the full budget available - and not only an extract - since line items may move due to changes in responsibility or function. In the 2014 NHA of RK, 35 line items were identified in the federal budgets, 32 of which had for main purpose “health (05)” and 3 had for purpose “education (04)”. These line items were under the responsibility of the following federal authorities:

- Ministry of Health (19 items for “health”; 3 items for “education”)
- Ministry of Defence (1 item for “health”)
- Ministry of Internal Affairs (4 items for “health”)
- Ministry of Education and Science (1 item for “health”)
- Ministry of Culture and Sports (1 item for “health”)
- Ministry of National Economy (2 items for “health”)
- Office of the President (4 items for “health”)

Among the federal authorities, the MOH is by far the most important player, financing some components of the SGBP directly (e.g. hospital care) or by transferring the required funds to the regions. The latter transaction, however, is only considered as a transfer from federal authorities to regional financing schemes (HF.1.1.2xFS.1.1).

Table 4.1 displays the line items of the budget of the MOH for 2014. Spending on specialised medical care and tertiary care are the most important budget items.

The scope of the other federal ministries is much more limited. The Ministry of Defence finances the treatment of military personnel in its own or other facilities. The Ministry of Internal Affairs finances health activities as set out in the 2011-2015 health plan “Salamatty Kazakhstan”, the treatment of law enforcement officials and their family members in their own or other facilities, and the construction of hospitals including hospitals for railroad workers. The Ministry of Education and Science finances medical rehabilitation for children. The Ministry of Culture and Sports and the Ministry of National Economy both finance some activities defined under the framework of the 2011-2015 health plan “Salamatty Kazakhstan”. Additionally, the Ministry of National Economy finances sanitary-epidemiological services (such as infection control) and provides funds to the regions for immunisation programmes. The Office of the President finances certain epidemiological services as well as medical treatment for civil servants and technical and informational support for health organisations. It also finances capital expenses for its own health care facilities.

In NHA of RK, the individual ministries and the presidential office are reported at the 4th-digit level under the HF classification.

Table 4.1. Extract of the Federal Budget used for NHA

Codes of budget classification	Name
1	2
05	Health
2	Protection of public health
009	Saving the special medical allowance
011	Ensuring the guaranteed volume of free medical care, except for the areas of funded at the local level
	100 Provision of specialized medical care
	101 Provision of tertiary care
	102 Provision of medical care in the form of air ambulance
	103 Provision of services for the production of blood, its components and preparations
	104 Promotion of healthy lifestyles
	105 Medical care with innovative medical technologies
111	Carrying out activities in the framework of the State Program for Health Development of the Republic of Kazakhstan "Salamatty Kazakhstan" for 2011-2015
9	Other health services
013	Applied research in the field of public health
016	Capital expenditures of public health organizations at the national level
017	Construction and reconstruction of health facilities
018	Services of forensic medical examination
019	Establishment of health information systems
020	Reforming the health care system
	004 At the expense of foreign loans
	016 Due to the co-financing of foreign loans from the state budget
021	Implementation of international standards in the field of hospital management
023	Increasing the authorized capital of the companies in the field of public health
024	Trust contribution to the AEO "Nazarbayev University"
104	The fight against drug addiction and drug trafficking
126	Major, medium and maintenance of health facilities within the framework of the Road Map 2020 Employment
04	Education
	Training and retraining of public health organizations staff
	training of specialists with higher and postgraduate education and social support to students
	Training in technical and professional organizations , post-secondary education and social support to students

Source: Ministry of Finance, Kazakhstan

Regional budgets of the 'oblasts' and Astana/Almaty in RK (HF.1.1.2)

Each of the regions records its budget using the same system as at the federal level. With some exceptions, the health-relevant budget line items are identical for all regions. Between 40 and 50 health-relevant line items are identified per region. For each budget line the amount financed out of regional sources and via transfers from the federal budget is recorded. Both transactions are recorded under HF.1.1.2. The transfers from the federal budget to the regions are not recorded under HF.1.1.1, hence there are no issues with double-counting. For the purpose of producing the NHA of RK there are 78 line items in 2014. The vast majority of

budget items are identified under the function “health” (05), only one item was labelled as “education” (04). Within the function “health” there are the following “sub-functions”: general hospitals (1), public health (2), secondary care (3), polyclinics (4), other medical care (5) and other health services (9). Under other health services, capital expenses are also included. Table 4.2 shows an extract of the summarised regional budget. The biggest individual item which is identifiable in the regional budgets refers to the financing of outpatient care provided by polyclinics.

Table 4.2. Extract of the summarised regional budget

Function	Budget classification codes				Title (of Ministry/Authority, budget program)
	Sub-function	agency	title	transfer	
5					HEALTH
	3				Secondary care
		253			Regional Health Governance
			009		Provision of medical care to persons suffering from tuberculosis, infectious diseases, mental health problems and disorders, including those related to substance use
				011	financed with transfers from the republican budget
				015	At the expense of the local budget
			019		Providing patients with tuberculosis drugs
			020		Providing diabetic patients with antidiabetic drugs
			021		Providing patients with hematological malignancies chemotherapy
			022		Providing drugs in-patients with chronic renal failure, autoimmune, orphan diseases, immunodeficiency and patients after kidney transplantation
			026		Provide clotting factors hemophiliacs
			027		Centralized procurement and storage of vaccines and other medical immunobiological preparations for immunization of the population
			036		Providing thrombolytic agents in patients with acute myocardial infarction
			046		Provision of medical care to cancer patients as part of the guaranteed volume of free medical care

Source: Ministry of Finance, Kazakhstan

As with the federal budget, the local budgets need to be analysed on an annual basis to check whether any changes in the budget titles have occurred.

Without knowing the full content of all line items in the federal budget and regional budget it might be safe to assume that some elements of health care financed by the state and regions are missing. This refers to health services for prisoners and provided at school, nursing long-

term care (frequently budgeted as “social”) and administration costs for the relevant ministries and health authorities – at least at the federal level. Hence, the full budgets should be analysed to assess whether any information on these health care activities can be identified.

Voluntary health care payment schemes (HF.2)

NHA of RK reports spending for voluntary health insurance schemes (HF.2.1), and enterprise financing schemes (HF.2.3). Non-profit institutions financing schemes (HF.2.2) are apparently not playing a big role in the financing of health care services in RK. However, in the System of National Accounts (SNA), some “NPISH final consumption expenditure” is reported (Table 4.3).

Table 4.3. GDP and its components in Kazakhstan, 2014, in million KZT

Item	SNA93 Item Code	Value
Final consumption expenditure	P.3	21,531,575,000,000
Household final consumption expenditure	P.3	17,124,076,000,000
NPISHs final consumption expenditure	P.3	398,632,000,000
General government final consumption expenditure	P.3	4,008,867,000,000
Individual consumption expenditure	P.31	2,026,966,000,000
Collective consumption expenditure	P.32	1,981,901,000,000
Gross capital formation	P.5	9,041,725,000,000
Gross fixed capital formation	P.51	7,486,161,000,000
Changes in inventories	P.52	1,555,563,000,000
Exports of goods and services	P.6	13,165,738,000,000
Less: Imports of goods and services	P.7	8,084,394,000,000
Plus: Statistical discrepancy		1,144,166,000,000
Equals: GROSS DOMESTIC PRODUCT	B.1*g	36,798,810,000,000

Source: UNSTAT (2016), *GDP and its breakdown at current prices in National currency*, <https://unstats.un.org/unsd/snaama/dnltransfer.asp?fid=1>

It is not clear to what extent this refers to health care services. Therefore, it is recommended to investigate whether a comprehensive list of accredited non-profit organisations exists in Kazakhstan and if any are financing or providing health care services. In a number of low and medium income countries external funds may be funnelled through national non-profit organisations. Under SHA 2011, the intention of HF.2.2 is to capture all transactions from NPI to health providers that finance health care goods and services. Typically NPI are financed out of donations, membership contributions, government support or other income. NPI might also operate health care facilities themselves. In this case the operating costs which are not covered by other financing schemes – and therefore from own NPI resources – should be included under NPI financing schemes.

The statistical report “Financial and economic activities of health care organisations” includes information on how current income is generated in facilities that have health or social care as their main activity. Table 2.1 of this publication shows income from voluntary contributions and donations which could be potentially useful to complete the reporting for HF.2.2.

Voluntary Health Insurance (HF.2.1)

NHA of RK uses information from the Central Bank of the Republic of Kazakhstan on expenditure and administration costs of private health insurers. In the case of Kazakhstan, private health insurers exclusively engage in Voluntary Health Insurance (HF.2.1). For the insurance branch 2.4 -“sickness insurance”- data is taken from the “summary report on insurance claims of (reinsurance) organisations”. Total spending on health care good and services is determined by the “net expenses for insurance payment” (Table 4.4).

Table 4.4. Expenditure by voluntary health insurance, 2014, in thds. KZT

№	Title insurance classes	Expenses for insurance payments	Expenses for insurance payments under the contracts accepted in reinsurance		Compensation for recourse	Risk compensation received under reinsurance contracts	Net expenses for insurance payments	The costs for the settlement of insurance claims
			from residences	from non-residences	total	total		
1	2	3	4	5	8	10	13	14
2	Voluntary personal insurance	25,681,351	322,762	676,689	12,896	374,368	26,293,538	639,418
2.4	sickness insurance	15,555,384	311,995	4,491	528	45,666	15,825,676	633,353

Source: National Bank of Kazakhstan.

Employer financing schemes (HF.2.3)

For health spending by employers the prime data source is the statistical report “Volume of services delivered by health care organisations” published by the Committee for Statistics. Additionally, some information by the Central Bank concerning VHI is used.

The statistics of “Volume of services provided by health care facilities” details the revenues of all facilities which have human health or social activities as their main activity. They thus belong to categories 86 to 88 in the NACE classification⁵. In the report, the facilities are clustered into 7 groups according to their main activity (hospitals, general practices, special medical practice, dental practice, facilities involved in other human health activities, residential care facilities and social care facilities without accommodation). For each group, revenues from all primary and secondary activity are recorded. The activities are displayed in great detail following the Classification of Products by Activity (CPA)⁶. Revenues can be separated depending on whether they were generated out of government sources, households or employers (Table 4.5). Revenues from government and employers are recorded net of value-added tax (VAT). Income from households is recorded including VAT. The statistics “Volume of services provided by health care facilities” also allows for separate analyses of health and social care facilities based on their own ownership, size and reports results on the level of oblasts.

For NHA purposes, revenues from employers for “Human health services” (category 86 in the CPA) are used for the sum of all health care facilities. However, there is some argument to be made to extend the scope of reporting to also include some activities related to long-term care – classified under CPA 87 and 88.

A second source for spending of employer financing schemes is the statistics of the Central Bank. There, the difference between “net earned premiums” and “net expenses for insurance payment” for the insurance class 2.4 “sickness insurance” is calculated and allocated to administrative costs.

It is not entirely clear why health spending by enterprises as a financing scheme (and not as revenue of a financing scheme) should be included in the insurance statistics. Therefore, it is recommended to assess whether there is some potential for double-counting between spending of voluntary health insurance (HF.2.1) and enterprise financing schemes (HF.2.3) in the current NHA of RK.

Table 4.5. Revenues by health care and social care facilities

Activity	The code for the type of CPA services	During the reporting period just	including by means		
			budget	the population	of enterprises
Total services rendered at the main and secondary activity	all	816,427,132	666,552,869	100,783,586	49,090,677
The volume of rendered health services and social services	Q	807,081,204	663,754,220	95,510,831	47,816,153
Provided in the area of health services , all	86	763,892,490	621,417,616	94,974,879	47,499,995
including:					
hospital services	86.10.1	446,479,884	399,596,176	32,781,245	14,102,463
Services surgical departments of hospitals	86.10.11	94,816,551	87,068,385	7,211,365	536,801
Services gynecological departments of hospitals and maternity homes	86.10.12	49,466,648	47,029,288	2,215,338	222,022
Rehabilitation centers Services	86.10.13	24,017,695	13,769,063	6,494,588	3,754,044
Services of psychiatric hospitals	86.10.14	13,843,207	13,528,188	298,451	16,568
Hospital services provided under the supervision of other doctors	86.10.15	33,633,277	30,586,376	1,756,057	1,290,844
Services of other hospitals	86.10.19	230,702,506	207,614,876	14,805,446	8,282,184
Services in the field of general medical practice	86.21.1	146,316,459	115,232,441	15,990,730	15,093,288
Services in the field of specialized medical practice	86.22.1	45,213,745	32,378,972	8,307,747	4,527,026
Services in the field of dentistry	86.23.1	21,119,727	5,400,006	13,777,521	1,942,200
Human health Other services	86.90.1	104,762,675	68,810,021	24,117,636	11,835,018
Provided in the area of social services, provision of services , the entire stay	87	38,166,532	37,623,318	401,045	142,169

Source: Statistics Committee, Ministry of the National Economy, Kazakhstan, *Volume of service statistics*, Table 1.1, Series 14 –social statistics.

Household out-of-pocket payment (HF.3)

The main data source to measure private household out-of-pocket spending (HF.3) is the annual household budget survey (HBS) collected from the National Committee for Statistics combined with information from the National Accounts, also collected by the National Committee for Statistics.

Household budget survey

The HBS is based on a sample size of around 12,000 households and records all expenditure and income per household for a defined time period. It excludes those parts of the population that are institutionalised, for example, in hospitals or nursing care facilities. Hence, severely ill people are typically underrepresented in the HBS. Some parts of the population, e.g. the rich, are also frequently underrepresented in the HBS. In the NHA of RK, nine spending categories from the household expenditure referring to health care are used (Table 4.6). Interestingly, informal health care spending has a separate category and is clearly identifiable. In many OECD countries this is not the case. Other health spending (in particular for long-term care) may be included in “social” categories that are currently not considered in the NHA of RK.

Table 4.6. Household budget survey

	total	urban	rural
Health care costs - all	11,915	14,950	8,179
Pharmaceutical products	6,331	7,590	4,781
Other medical products	142	161	116
Therapeutic appliances and equipment	441	589	259
Medical services	368	508	195
Dental services	2,372	3,230	1,317
Traditional/alternative medicine	718	997	376
Hospital services	1,296	1,626	889
Transportation to and from medical institutions	173	162	187
Informal health care costs	74	87	59

Source: Statistics Committee, Ministry of the National Economy, Kazakhstan, *Expenditures and incomes of RK population*, Form 1.33.

National Accounts

As an additional data source to determine the value of total out-of-pocket spending household final consumption as measured in the National Accounts is used. Health spending measured in the HBS is scaled up using private household consumption as a benchmark figure. This is due to the fact that information from the HBS is considered as underreported and only the proportion of health spending to total household spending is deemed reliable. Total out-of-pocket spending is calculated by multiplying this proportion with total household final consumption. Applying this percentage to final household consumption assumes that underreporting is equally distributed among all spending items in the HBS. This might be considered a strong assumption and warrants further analysis.

Overreliance on information from the HBS to measure out-of-pocket spending should generally be avoided when constructing health accounts (Rannan-Eliya and Lorenzoni, 2010). As discussed above, weaknesses in the HBS can be related to small sample sizes, survey design and exclusion of certain population groups. Other data sources such as administrative sources for co-payments or revenue information from the provider side (e.g. income tax declarations, cost structure statistics) come with their own problems but are generally considered more reliable. In most cases, a triangulation of different data sources is highly recommended to measure out-of-pocket payments (HF.3). This is discussed further in Chapter 5.

Rest of the world financing schemes (HF.4)

Health care spending financed by non-resident financing schemes is currently identified via two different data sources; the statistical report “Financial and economic activities of health care organisations” published by the Statistical Committee and the “Creditor Reporting System” from the OECD database on development assistance.

Tables 2.1 and 3.1 in the statistics “Financial and economic activities of health care organisations” display the current income of and the value of capital transfers to seven different groups of domestic health and social care facilities. As described as a possibility to report spending by non-profit institutions (HF.2.2) one source of income and transfers are voluntary contributions and donations, this can be further divided into contributions from abroad. In 2014, foreign contributions can be identified for hospitals and other facilities involved in human health care.

For development assistance to Kazakhstan the “Credit Reporting System” database of the OECD is used. Foreign funds refer to official development assistance, other official flows and private grants.

Reporting of FS and FP outside the SHA framework

The reporting of revenues of financing schemes is intrinsically linked to health spending for each financing scheme (HF). In that respect, no additional data sources are used to identify the revenues of the financing schemes of the NHA of RK; the information is already included in the prime data sources of financing schemes. For voluntary health insurance (HF.2.1) and out-of-pocket payments (HF.3) only one source of revenue is identified, voluntary prepayments from households (FS.5.1) and other revenues from households (FS.6.1), respectively. For spending of government schemes (HF.1.1), the revenues are split into whether they originate from the federal budget (FS.1.1.1), the local budget (FS.1.1.2) or out of loans (FSR.1).⁷ This information can be retrieved from the respective federal and local budgets. For enterprise financing schemes (HF.2.3), voluntary prepayments by households (FS.5.1) and other revenues from corporations (FS.6.2) are recorded as revenue sources. Revenues of rest of the world financing (HF.4) stem from direct foreign financial transfers (FS.7.1) - measured via the OECD “Credit Reporting System” database - and other direct foreign transfer (n.e.c) (FS.7.3) as identified in the “Financial and economic activities” statistics of the Statistical Committee.

The grouping of some revenue streams, however, should be further scrutinised. With regards to the financing of voluntary health insurance (HF.2.1), the revenues should be split between contributions from households (FS.5.1) and employers (FS.5.2) as both entities appear to fund VHI premiums (Katsaga et al., 2012). For employer financing schemes (HF.2.3), it remains unclear as to what types of revenues are classified under FS.5.1. Finally, the extent to which revenues from abroad are correctly allocated at the several FS.7 subcategories is discussed in more detail in Sections 5.1.4 and 5.2.

In one area, the FS-reporting in NHA of RK goes beyond the minimum requirements in SHA 2011 to reflect additional country needs. This refers to the recording of internal transfers and grants (FS.1.1) at the 3rd digit level to be able to distinguish between funds from the federal and local budgets. On the other hand, some other revenue categories which may be applicable in Kazakhstan are currently not reported. This could, for example, refer to transfers by the government on behalf of specific groups (FS.1.2), subsidies (FS.1.3) and other transfers from government domestic revenues (FS.1.4). The possible reallocation of parts of FS.1.1 should therefore be examined at a more detailed transaction level.

The factor of provision table provides an insight into the inputs used in the provision of health care and as such is linked directly to the dimension of health care providers (HP). This linkage is inherent in Chapter 9 of the SHA 2011 manual although an explicit proposal to cross the classification of factors of provision with that of health providers is missing. The latter is included in the official JHAQ data submission request where countries are invited to report all factors of provisions for health providers on the first digit level in the FPxHP table.

Kazakhstan reports all recommended factors of provision categories with the exception of self-employed professional remuneration (FP.2) and the intermediate consumption of health care services (FP.3.1). Costs of inputs are identified from Table 4.1 of the “Financial and Economic Activities” statistics which provides a detailed list of cost items for seven broad provider categories. Further clarification should be provided as to what extent self-employed professional remuneration (FP.2) is included under the cost item wages (FP.1) as the non-reporting suggests that health professionals are exclusively salaried in Kazakhstan.

4.3. Summary of recommendations

The level of reporting of the NHA of RK is very detailed; this is true for the number of the reported dimension as well as for the number of categories within each dimension. That said, for policy use it would be important to report some further categories in the functional classification, in particular a split between prescribed pharmaceuticals (HC.5.1.1) and over-the-counter medicines (HC.5.1.2) and a more detailed and comprehensive reporting of long-term care spending items (HC.3), which is so far missing from private sources. With regards to the financing breakdown, there would be some value in separating payments due to cost-sharing (HF.3.2) from other out-of-pocket (OOP) payments. To operationalise more detailed reporting, additional data sources seem to be necessary.

With regards to the use of data sources, the federal and regional budgets are considered good and stable sources to identify public spending. However, for some health spending items, such as prison health services or cost of staff working in Ministries of Health or other health organisations the budget analysis needs to go beyond the function “health” because they are typically reported under other functions.

For compulsory insurance schemes (HF.1.2) it would be worth investigating to what extent motor insurance and accident insurance financed health care goods and services (going beyond cash payments as indemnities). In this respect, the statistics of the Central Bank looks to be a potentially good data source.

For the measurement of spending of employer financing scheme (HF.2.3) the information included from the Central Bank refers to the administrative costs of voluntary health insurance schemes (HF.2.1) and should be reclassified.

Spending by NPISH (HF.2.2) seems to exist in Kazakhstan and therefore should be reported in the NHA of RK. A first step would be to source a comprehensive list of accredited non-profit organisations in Kazakhstan and identify if any are financing or providing health care services. From there, the exact nature of 'voluntary contributions and donations' as a revenue source in the statistical report “Financial and economic activities of health care organisations” should be further investigated to ascertain whether this is stemming from non-profit organisations as financing health services.

Exclusive reliance on the household budget survey to measure out-of-pocket spending (HF.3) should be avoided. Data should be reconciled with information from the provider side

(see Chapter 5). The choice of data source not only affects out-of-pocket spending but also determines health spending at an aggregate level.

For some types of financing schemes the allocation of revenues into different FS categories should be revisited, in particular for voluntary health insurance schemes (HF.2.1) and employer financing schemes (HF.2.3). Whilst relying on a potentially strong data source to estimate input costs, the approach to measure factors of provision should be re-evaluated with a stronger focus on making them provider-specific (see Chapter 5).

Notes

1. Based on the submissions of the 2016 Joint Health Accounts Questionnaire, which covers OECD and EU countries and is administered jointly by OECD, EU and WHO.
2. See <http://www.oecd.org/health/health-systems/a-system-of-health-accounts-9789264116016-en.htm> for a feasibility study of the reporting of factors of provision in OECD countries.
3. The JHAQ is the annual joint health accounts data collection administered by OECD, Eurostat and WHO.
4. The Budget Execution Report (BER) is produced by the Ministry of Finance by 30 January. A request is then made to the Ministry of Finance by the MOH.
5. The NACE is a statistical classification of economic activities in the European Community.
6. The CPA is a version of the Central Product Classification (CPC) used and developed by the European Union.
7. Note that loans are not a revenue source *per se*. Loans increase the financial assets or liabilities of a financing scheme and are therefore already accounted for in the revenues. In addition, they are recorded as a memorandum item of loans 'used' during the period rather than loans 'taken out'.

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Rannan-Eliya, R.P. and L. Lorenzoni (2010), "Guidelines for Improving the Comparability and Availability of Private Health Expenditures Under the System of Health Accounts Framework", *OECD Health Working Papers, No. 52*, OECD Publishing, Paris.
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Chapter 5

Methodology

There are a number of different approaches on how to construct National Health Accounts (NHA) in countries. The approach can depend on which data sources are readily available and how those data sources are structured. It can also depend on the governance and management model, i.e. what agency is responsible for the implementation of health accounts in the country.

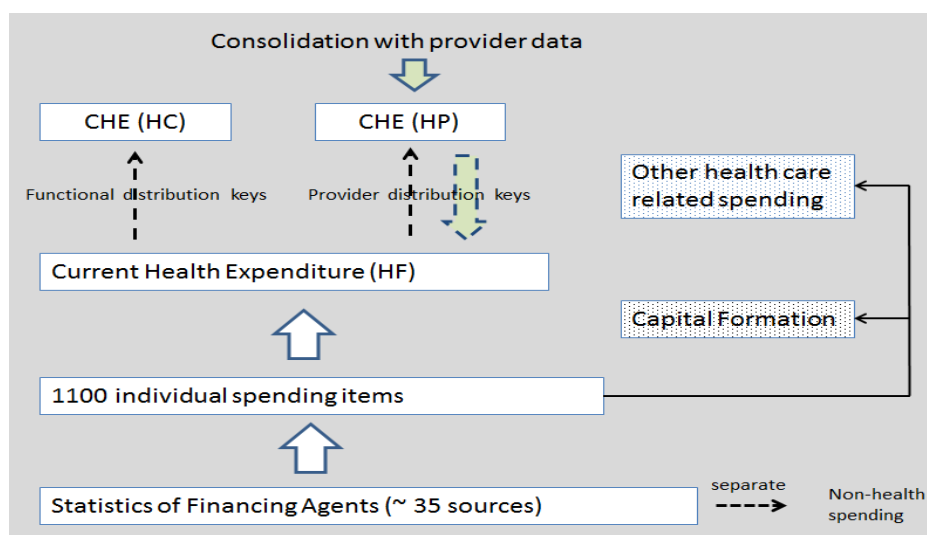
This chapter reviews the current set of methodologies used in constructing the National Health Accounts of Kazakhstan. A summary of recommendations is provided at the end of the chapter to develop more robust measures of health spending to feed into the decision-making process.

5.1. Introduction

Many OECD countries start from the financing side (HF) to construct the three core tables (HCxHF, HCxHP, HPxHF) before using additional information to eventually extend the reporting to supplementary dimensions, such as revenues of the financing schemes (FS), factors of health provision (FP) or capital formation (HK). Alternatively, countries rely on provider-side statistics and try to distribute revenues to financing schemes and functions. A third approach – frequently referred to as ‘top-down’ approach – would be to use existing aggregate information of health spending for different institutional units and disaggregate this to the level required in the health accounts. The most promising approach is a mixture of the different methods, for example, when spending information from financing schemes are mapped with revenue data from health providers.

The NHA in Republic of Kazakhstan (RK) is currently most closely aligned with the first approach with a strong focus on information from the financing side. This approach is also used in a number of other countries, including Germany. It implies the identification of all relevant health spending items in one or more data sources for each financing scheme. These spending items are then attributed to one or more health care functions and providers. In the simplest case, spending items can be allocated on a one-to-one basis if they are described in detail and fit sufficiently to the respective categories in the HC and HP classifications. However, often a spending item is required to be allocated across several health care functions and providers. These allocations are done with the help of “distribution keys” which can be based on additional or ancillary statistics. Figure 5.1 displays the principle.

Figure 5.1. Methodological approach to the allocation of health spending



Source: Adapted from Destatis (2011), *Gesundheitsausgabenrechnung: Methoden und Grundlagen 2008*, https://www.destatis.de/DE/Methoden/Methodenpapiere/Download/Gesundheitsausgabenrechnung.pdf?__blob=publicationFile

A challenge with this approach is that, ideally, the content of all spending items is analysed in detail and, if required, appropriate allocation keys are constructed. However, in many cases the exact content of spending items is frequently unknown and even then, the identification of accurate allocation keys is complicated. As a result, this approach can lead to a skewed allocation of spending to health care functions and providers on an aggregate level if spending items are too often allocated to only one function and provider based on the main activity or

provider. Hence, ideally, spending by health providers estimated with this approach should be cross-validated with available statistics of revenues or costs from the health providers' side which can then help in the calibration of "distribution keys".

5.2. The core accounting framework

This section discusses the methodology of how health spending in the NHA of RK is calculated for the core health care dimensions as well as how the different transactions are valued. Based on the set-up of NHA in RK this discussion will be split into the different financing schemes.

Government schemes and compulsory contributory health care financing schemes (HF.1)

As discussed in Chapter 4, NHA of RK uses two main data sources to identify government spending on health care; the federal budget for expenditure of central authorities and the summarised budgets of the 16 regions to identify expenditure of the regional authorities.

Central government schemes (HF.1.1.1)

For the federal budget, 35 budget lines are identified. Out of those 33 are 100% allocated to a single HC category and a single HP category. For the other two, which in terms of spending are the two most important budget items, allocation keys are created to distribute spending across functions and providers. These two items are:

- 05 02 239 011 100 (53% of all health-relevant spending in the federal budget)
 “Ensuring the guaranteed volume of free medical care, except for the areas of funded at the local level – Provision of specialised medical care”
- 05 02 239 011 101 (13% of all health-relevant spending in the federal budget)
 “Ensuring the guaranteed volume of free medical care, except for the areas of funded at the local level – Provision of tertiary services”

In both cases an allocation key was created based on information from the Committee for Purchasing of Medical Services (CPMS) allowing for a further functional and provider breakdown.

For some other line items a similar approach would be desirable to ascertain whether they are correctly allocated to one function and provider or whether they should be split to achieve a more accurate spending picture. That said, it is recognised that the desire to achieve a more accurate allocation of spending items needs to be balanced with resources available and the significance of the spending amount to be allocated. For a number of small budget items related to the implementation of the State program "Salamatty Kazakhstan" the construction of an allocation key might be helpful although any resulting reallocations would have little impact on the overall structure of spending items.

Overall, judging from the budget line descriptions, the majority of spending items would appear to be correctly allocated to HC and HP categories¹. For a number of budget items, however, reallocations could be considered:

Some budget items are currently classified as HCRI.11 “Other expenditure types” (in the NHA of RK) and may require more scrutiny. It is not entirely clear whether all budget items allocated to HCRI.11 are financing the consumption of health care goods and services. For

example, for budget item 05 2 239 024 (“Trust contribution to the AEO Nazarbayev University”) it is unclear whether this is financing education, the acquisition of assets or the consumption of health care goods and services.

Regional government schemes (HF.1.1.2)

For the summarised regional budget, 79 budget lines are identified. Of these, 75 are 100% allocated to a single function and provider. For the remaining four, which represent the most important budget items, allocation keys are created to distribute spending across functions and/or providers. These four items are:

- 05 03 253 009 and 05 03 353 009 (13% of all health-relevant spending in the regional budgets)

“Provision of medical care to persons suffering from tuberculosis, infectious diseases, mental health problems and disorders, including those related to substance use”.

- 05 04 253 039 and 05 04 353 039 (41% of all health-relevant spending in the regional budgets)

“Providing medical assistance to the population of the district values the health subjects and villages and outpatient care within the guaranteed volume of free medical care”.

In both cases, allocation keys were created based on additional information provided from the local health authorities. The level of detail and quality of the responses of this information differs, however, between oblasts making them slightly less accurate than official statistics.

For a number of other budget items there may be value in reconsidering whether a 100% allocation is appropriate or whether a splitting of the spending items into several functions and/or providers would be more accurate. For example, budget items 05 03 253 009 and 05 03 353 009 (“Provision of medical care to persons suffering from tuberculosis, infectious diseases, mental health problems and disorders, including those related to substance use”) are allocated to inpatient care (HC.1.1). However, some of the care may be provided as day care (HC.1.2) or outpatient care (HC.1.3). There may be a possibility to acquire further information from oblasts for a more precise breakdown.

A number of other budget items are currently allocated in their entirety to prescribed medications to outpatients (HC.5.1.1). It should be clarified whether some of these items actually include inpatient medication, in which case a proportion should be considered as HC.1.1. This refers to:

- 05 03 253 021

“Providing patients with haematological malignancies chemotherapy”.

- 05 03 253 022

“Providing drugs for patients with chronic renal failure, autoimmune, orphan diseases, immunodeficiency and patients after kidney transplantation”.

Similarly, for a number of budget items some reallocations to other functions or providers may be considered. For example, budget item 05 03 253 026 (“Provide clotting factors for haemophiliacs”) is currently recorded as an ancillary service (HC.4). Based on experience in OECD countries this service is often provided as part of an inpatient treatment (HC.1.1). The same is true for budget item 05 03 253 005 (“Provision of blood, its components and preparations”) which should normally be considered as part of an inpatient procedure (HC.1.1).

In addition, as it is the case in the federal budget, it is not entirely clear whether items currently classified as HCRI.11 “Other expenditure types” finance the consumption of health care goods and services.

Voluntary health care payment schemes (HF.2)

As discussed in Chapter 4, NHA of RK currently considers voluntary health insurance (HF.2.1) and employers (HF.2.3) as financing schemes.

Voluntary Health Insurance (HF.2.1)

The relevant information to measure health spending for Voluntary Health Insurance (VHI) comes from the Central Bank. Data for insurance type 2.4 “Sickness insurance” is used. Health spending by private health insurers can generally be divided into expenditure for health care goods and services (HC.1-HC.6, HC.0) and for administration (HC.7). In the NHA of RK the “net expenses for insurance payment” are the aggregate value used to determine expenditure for health care goods and services and the difference between “net premiums earned” and “net expenses for insurance payment” to value administration expenditure. In the absence of any further breakdown of claims, all spending on health care goods and services is allocated to HC.7.2. This is, however, not the best solution. In the absence of hard data on what health care activities are paid for by VHI, the most common insurance policies could be analysed to see what activities are covered and spending could be allocated to these health care functions. It is understood that in Kazakhstan the majority of voluntary health insurance coverage will be used for outpatient services. Hence, even if no actual data is available it is advisable to allocate net claims to HC.1.3 rather than in the administrative spending category.

Similar approaches to measure insurance spending and administrative insurance output are used in many OECD countries. However, with regards to the measuring of administrative services of private insurance (HC.7), SHA 2011 recommends a slightly different approach. It suggests following the recommendation of the System of National Accounts 2008 (see p. 107 and footnote 43 in Chapter 5 of SHA 2011). Reference is made to paragraphs 6.184 to 6.191 in SNA 2008 on the valuation of service charges for non-life insurance. The recommended valuation of “insurance output” is defined by total premiums earned plus premium supplements less adjusted claims incurred. It is understood that the premium supplements (that is, the investment income which insurance companies generate from their technical reserves – this income remains with the insurance corporation and is in effect a hidden supplement to the premium) are currently not considered in measuring administrative insurance output in the NHA of RK. Moreover, adjusted claims should be used instead of claims incurred. These refer to the sum of actual claims incurred plus the change in equalisation provisions. Equalisation provisions are funds set aside by insurers to meet unexpected large claims. It should be investigated to what extent the Central Bank also records these aggregates in their insurance statistics.

Finally, the NHA of RK only considers private “health” insurance. However, there may also be other types of insurance that finance some health services. This could be true for compulsory private insurance schemes (e.g. liability insurance for owners of motorised vehicles) which should be recorded under HF.1.2 – or other voluntary private insurance schemes (e.g. private accident insurance) – which would be covered under HF.2.1. But it needs to be borne in mind that only direct financing of health care goods and services of these schemes or their reimbursement of these costs to other schemes should be recorded. In the case of indemnity payments these should not be considered under SHA.

However, there may be a serious problem of double-counting regarding spending by employer financing schemes (HF.2.3) which needs to be investigated.

Non-profit institutions financing schemes (HF.2.2)

As discussed in Chapter 4, spending by NPI financing schemes are currently not recorded in the NHA in RK. However, it is recommended that health expenditure by non-profit institutions from their own resources, for example through membership fees, donations or contributions should be classified as HF.2.2. The statistical report “Financial and economic activities of health care organisations in the Republic of Kazakhstan” suggests this might be the case in RK. Table 5.1 displays the information included with regards to the source of income.

Voluntary contributions and donations are one source which could be used to measure HF.2.2. The statistics do not cover all health care providers but only the most important ones. It could, however, be used as a starting point for reporting on HF.2.2. The allocation to providers appears to be feasible. More problematic would be the allocation to health care functions. In the absence of additional information allocating on the basis of the main activity of the concerned provider could be considered.

Table 5.1. Current income of health and social care facilities

2014, in Thsd KZT	Total	including :							
		Human health activities	of which					provision of social services with accommodation	provision of social services without accommodati on
			Hospitals	General practice	Special medical practice	Dental practice	other provider engaged in human health activities		
Current income	933 662 003	805 205 052	511 949 478	108 157 674	39 212 540	18 948 262	126 937 098	123 551 773	4 905 178
Current transfers	730 541 195	603 754 762	430 908 841	71 223 648	24 471 579	3 257 632	73 893 062	122 522 673	4 263 760
--- From the national budget	430 109 782	427 326 220	308 963 385	56 451 905	23 509 318	1 967 810	36 433 802	2 374 475	409 087
--- From the local budget	294 765 628	171 443 996	118 344 324	14 298 139	937 222	1 289 538	36 574 773	119 617 630	3 704 002
--- income from voluntary contributio ns and donations	5 665 785	4 984 546	3 601 132	473 604	25 039	284	884 487	530 568	150 671
--- of which from abroad	2 102 717	2 017 974	1 992 431	-	-	-	25 543	5 885	78 858
Value of services provided and goods sold	184 333 354	183 068 414	69 690 742	34 636 686	13 837 923	15 335 355	49 567 708	916 160	348 780
Net income from the resale of goods	7 226 371	7 147 006	4 191 916	606 532	538 822	133 000	1 676 736	-	79 365

Table 5.1. Current income of health and social care facilities (cont.)

Property income	651 361	651 361	234 482	319 583	58 339	425	38 532	-	-
Other operating profit (e.g. net income from sales of capital assets)	10 909 722	10 583 509	6 923 497	1 371 225	305 877	221 850	1 761 060	112 940	213 273

Source: Statistics Committee, Ministry of the National Economy, Kazakhstan, *Financial and economic activity of health care organisations expenditures and incomes of RK population*, Table 2.1.

Employer financing schemes (HF.2.3)

The data sources used to estimate spending by employer financing schemes in the NHA in RK combine information for employers as displayed in the “volume of service” statistics with information from the Central Bank for private insurance. It should be clarified to what extent there is an overlap in the two sources between financing by employers and VHI which could result in some double-counting. Additionally, there may be the problem of double-counting between the spending recorded under VHI (HF.2.1) and employer financing schemes. The reason for this is that the “volume of service” statistics records funding for health care organisations only from three sources: government, population and enterprises. It needs to be clarified where health care organisation record the financing of VHI. There is reason to assume that it is covered under enterprises. If this is true the value recorded in the volume of service statistics needs to be netted out with the VHI spending for health care goods and services recorded under HF.2.1. A preliminary analysis suggests that only spending recorded under “enterprises” in the volume of service statistics should be recorded under HF.2.3. The remaining value recorded under “enterprises” should then be allocated to HF.2.3. The majority of activities recorded under these statistics are allocated to one HC and one HP (Table 5.2). The statistics used clearly identify the activity but lump all health and social care provider together. A more detailed separation of providers would be desirable to distribute one spending item to the appropriate providers instead of allocating all to only one provider.

In addition to the current reporting, some long-term care activities financed by enterprises could also be incorporated in the NHA.

Table 5.2. Revenues from health and social care volumes (and recommended accounting)

Activity	The code for the type of CPA services	During the reporting period just	financed from		Classification proposal		
			enterprises		HC	HP	
Total services rendered at the main and secondary activity	all	816 427 132	49 090 677				
HUMAN HEALTH AND SOCIAL WORK SERVICES	Q	807 081 204	47 816 153				
Human health services	86	763 892 490	47 499 995				
including:							
Hospital services	86.10.1	446 479 884	14 102 463				
Hospital surgical services	86.10.11	94 816 551	536 801			1.1	1.1

Table 5.2. Revenues from health and social care volumes (and recommended accounting) (cont.)

Hospital gynaecological and obstetrical services	86.10.12	49 466 648	222 022	1.1	1.1
Hospital rehabilitation services	86.10.13	24 017 695	3 754 044	2.1	1.1 or 1.3
Hospital psychiatric services	86.10.14	13 843 207	16 568	1.1	1.1 or 1.2
Other hospital services provided by medical doctors	86.10.15	33 633 277	1 290 844	1.1	1
Other hospital services	86.10.19	230 702 506	8 282 184	unclear	1
General medical practice services	86.21.1	146 316 459	15 093 288	1.3.1	3.1 or 3.4
Specialist medical practice services	86.22.1	45 213 745	4 527 026	1.3.3	3.1 or 3.4
Dental practice services	86.23.1	21 119 727	1 942 200	1.3.2	3.2 or 3.4
Other human health services	86.90.1	104 762 675	11 835 018	unclear	unclear
Residential care services	87	38 166 532	142 169		
including:					
Residential care services for mental retardation, mental health and substance abuse	87.20.1	15 608 760	1 175	3.1 or R1	2.2
Residential care services for the elderly and disabled	87.30.1	7 734 068	36 348	3.1 or R1	2.1
including:					
Social work services without accommodation for the elderly and disabled	88.10.1	1 335 581	117 495	3.1 or R1	3.5

NHA relevant enterprise spending**47 655 013**

Source: Statistics Committee, Ministry of the National Economy, Kazakhstan, *Expenditures and incomes of RK population*, Form 1.33.

Household out-of-pocket payment (HF.3)

Household out-of-pocket spending is identified via the Household Budget Survey (HBS). With regards to health care it is possible to identify annual spending per capita for nine different spending items. Each of them is allocated to one HC and one HP category. The allocation can be seen in Table 5.3.

The allocation is generally straight-forward. However, services for traditional/alternative medicine are typically allocated to HC.1.3 and HP.3.3 in other OECD countries. For informal care the “unknown” category (HC.0) would be appropriate if no additional information on the activities that trigger informal payments is known. We understand that informal payments in Kazakhstan are frequently associated with inpatient care, so an allocation to HC.1.1 and HP.1 would also appear justified.

However, there are concerns with regards to the general methodology applied to estimate out-of-pocket spending. According to the HBS, total spending on health items stood at KZT 11 915 per capita in 2014. This equates to 2.7% of total household spending as measured in the HBS (KZT 445 569). If total household out-of-pocket spending was extrapolated with the measured value (KZT 11 915) HF3 would stand around KZT 206 billion for the total population. However, due to presumed underreporting in the HBS only the share of health spending in total spending (2.7%) is calculated and this share is applied to final household consumption as measured in the National Accounts by the Statistical Committee. In 2014, this

aggregate amounted to KZT 18 121 billion. Based on this method, HF3 is estimated to stand at KZT 484 billion, more than double the value without adjustment.

Generally, this method could be adequate to compensate for underreporting in the HBS but it relies on the strong assumption that underreporting is equally distributed for all spending items included in the HBS. Due to this and general concerns with data originating from the HBS it is recommended to also consider alternative approaches to measure household out-of-pocket spending. Even if countries are confident that the information from the HBS is accurate and representative, an alternative approach should be used to verify and confirm. This may include data sources from the provider side to see whether they are consistent with information exclusively gained from a perspective of financing sources.

Table 5.3. Out-of-pocket spending for health care as used in Kazakh NHA

	HBS	HBS	NHA	HC	HP
	per capita	total mln KZT	total mln KZT		
Health care costs - all	11 915	206 101	484 593		
Pharmaceutical products	6 331	109 463	257 487	5.1	5.1
Other medical products	142	2 455	5 775	5.2	5.3
Therapeutic appliances and equipment	441	7 625	17 936	5.2	5.2
Medical services	368	6 363	14 967	1.3.1	3.1
Dental services	2 372	41 012	96 471	1.3.2	3.2
Traditional/alternative medicine	718	12 414	29 202	4.9	4.9
Hospital services	1 296	22 408	52 709	1.1	1.1
Transportation to and from medical institutions	173	2 991	7 036	4.3	4.1
Informal health care costs	74	1 279	3 010	RI.12*	11*

Note: Population in 2014: 17.29 mln (World Bank).

* National category in NHA of RK.

Source: Statistics Committee, Ministry of the National Economy, Kazakhstan, *Expenditures and incomes of RK population*, Form 1.33.

From the provider side two additional data sources look potentially useful to measure out-of-pocket spending for some health care elements:

- Statistics “Volume of services delivered by health care organisations of the Republic of Kazakhstan”; Series 14 – social domain, Statistical Committee.
- Statistics “Financial and economic activities of health care organisations in the Republic of Kazakhstan”; Series 14 – social domain, Statistical Committee.

The “volume of service” statistics display revenues of all health facilities which have human health or social activities as their main activity. They belong to categories 86 to 88 in the NACE classification². The facilities are clustered into 7 groups according to their main activity (hospitals, general practices, special medical practice, dental practice, facilities involved in other human health activities, residential care facilities and social care facilities without accommodation). For each group, revenues from all primary and secondary activity are recorded. The activities are displayed in great detail following the Classification of Products by Activity (CPA³). Revenues can be separated into government sources, households or employers. Revenues from government and employers are recorded net of value-added tax (VAT). For income from households, this is recorded including VAT. The “volume of service”

statistics also allow an analysis of health and social care facilities based on their own ownership, size and reports results at the oblast level.

The “financial and economic activity” statistics displays data on current income, operating costs, capital transfers received and capital costs for the identical facilities as the “volume of service” statistics. The concept of income in “financial and economic activity” statistics, however, is larger than the revenues measured in the “volume of service” statistics and also includes property income and other income.

Using the information from the “volume of service” statistics to measure out-of-pocket spending would show some significant differences to the current approach (Table 5.4). Based on this data source, around KZT 95 billion appears to be relevant for NHA purposes. Compared to the HBS, data on spending for pharmaceuticals, medical goods, transport and informal payments are missing in the “volume of service” statistics. On the other hand, there is some information in the “volume of service” statistics on out-of-pocket payments for long-term care. Comparing those spending items that are included in both statistics there are some significant discrepancies. This is most pronounced for dental care which is estimated based on the HBS to stand at KZT 96 billion but only around KZT 14 billion in the “volume of service” statistics. Hospital services are estimated at KZT 52 billion based on the HBS compared to around KZT 33 billion in the “volume of service” statistics. For GP, specialist services and other ambulatory services outside hospital the deviation is smaller: KZT 44 billion in the household budget survey vs. KZT 48 billion in “volume of service” statistics.

Table 5.4. Revenues by health and social care organisations in KZT 1 000

Activity	The code for the type of CPA services	During the reporting period just	financed from			Classification proposal	
			government	population	enterprises	HC	HP
Total services rendered at the main and secondary activity	all	816 427 132	666 552 869	100 783 586	49 090 677		
HUMAN HEALTH AND SOCIAL WORK SERVICES	Q	807 081 204	663 754 220	95 510 831	47 816 153		
Human health services	86	763 892 490	621 417 616	94 974 879	47 499 995		
including:							
Hospital services	86.10.1	446 479 884	399 596 176	32 781 245	14 102 463		
Hospital surgical services	86.10.11	94 816 551	87 068 385	7 211 365	536 801	1.1	1.1
Hospital gynaecological and obstetrical services	86.10.12	49 466 648	47 029 288	2 215 338	222 022	1.1	1.1
Hospital rehabilitation services	86.10.13	24 017 695	13 769 063	6 494 588	3 754 044	2.1	1.1 or 1.3
Hospital psychiatric services	86.10.14	13 843 207	13 528 188	298 451	16 568	1.1	1.1 or 1.2
Other hospital services provided by medical doctors	86.10.15	33 633 277	30 586 376	1 756 057	1 290 844	1.1	1
Other hospital services	86.10.19	230 702 506	207 614 876	14 805 446	8 282 184	unclear	1
General medical practice services	86.21.1	146 316 459	115 232 441	15 990 730	15 093 288	1.3.1	3.1 or 3.4
Specialist medical practice services	86.22.1	45 213 745	32 378 972	8 307 747	4 527 026	1.3.3	3.1 or 3.4
Dental practice services	86.23.1	21 119 727	5 400 006	13 777 521	1 942 200	1.3.2	3.2 or 3.4
Other human health services	86.90.1	104 762 675	68 810 021	24 117 636	11 835 018	unclear	unclear
Residential care services	87	38 166 532	37 623 318	401 045	142 169		
including:							
Residential nursing care services	87.10.1	795 923	793 555	2 368	0	3.1 or R1	2.1

Table 5.4. Revenues by health and social care organisations in KZT 1 000 (cont.)

Residential care services for mental retardation, mental health and substance abuse	87.20.1	15 608 760	15 492 397	115 188	1 175	3.1 or R1	2.2
Residential care services for the elderly and disabled	87.30.1	7 734 068	7 574 835	122 885	36 348	3.1 or R1	2.1
Other residential care services	87.90.1	14 027 781	13 762 531	160 604	104 646		
Social work services without accommodation	88	5 022 182	4 713 286	134 907	173 989		
including:							
Social work services without accommodation for the elderly and disabled	88.10.1	1 335 581	1 195 911	22 175	117 495	3.1 or R1	3.5
Child day-care services	88.91.1	730 260	713 407	16 853	0		
Other social work services without accommodation n.e.c.	88.99.1	2 956 341	2 803 968	95 879	56 494		
all other non-health or social activities	all other	9 345 928	2 798 649	5 272 755	1 274 524		
NHA relevant OOP spending				95 237 495			

Source: Statistics Committee, Ministry of the National Economy, Kazakhstan, *Volume of service statistics*.

Table 2.1 in the “financial and economic activity” statistics displays the current income of the seven groups of health care provider. The item “income from sold services and goods” appears to include payments by household, but also from employers. Hence, this does not seem to be directly usable to measure out-of-pocket payment but possibly as a control value once spending by employers are taken into account.

Rest of the world financing schemes (non-resident) (HF.4)

Financing of health care goods and services from schemes residing outside of Kazakhstan is recorded from three sources. Table 2.1 of the “financial and economic activity” statistics displays spending from abroad for hospitals and organisations engaged in other activities to protect human health. They are reported under HF.4.2.1 “Voluntary Health Insurance Schemes”. However, whether this income is generated from voluntary health insurance schemes which are based abroad is unclear. It is also not entirely clear whether the income reported by sources abroad is for the treatment of residents of Kazakhstan. If this is not the case, the transactions should be excluded from the health accounts since they would refer to exports. In addition, Table 3.1 of the “financial and economic activity” statistics also includes capital transfers for health organisations from abroad which should be moved to the capital account and not included under current health spending.

A third source is the “Credit Reporting System” database of the OECD for the recording of official development assistance (ODA), other official flows (OOF) and private grants. In 2014, Kazakhstan recorded ODA in the form of “commitments” by donors to the sector Health (code 120) for “all types” of aid financed via “all channels” of around USD 14.4 million. After currency conversion into KZT, this value is reported under HF.4.2.2 (“other schemes”).

In the “Guidelines for the implementation of the SHA 2011 Framework for Accounting Health Care Financing”⁴, OECD and WHO propose a slightly different approach to account for foreign aid. First, for official development aid the recipient country’s budget should be the preferred data source. This is due to the fact that OECD DAC database is not exhaustive in donor country coverage. Additionally, other data sources such as the IHME database on health-specific donor funding can be consulted, which also go beyond the OECD DAC database in terms of coverage. Second, for the purpose of SHA, “disbursements” is the flow type that should be used to measure transfers as it is closer to the concept of actual expenditure than

“commitments” by donors. With regards to the type of aid, all types should be considered with the exception of “E-Scholarships and student costs in donor countries” and “G- Administrative costs n.i.e.” (Table 5.5) which would be outside of the universe of transactions covered in the core SHA framework.

Table 5.5. SHA-relevant foreign aid to Kazakhstan as displayed in the OECD DAC CRS

		Recipient	Kazakhstan				
		Sector	120: I.2. Health, Total				
		Channel	All Channels				
		Amount type	Current Prices				
		Flow type	<u>Gross Disbursements</u>				
		Donor	All Donors, Total				
		Unit	US Dollar, Millions				
		Year	2010	2011	2012	2013	2014
Flow	Type of aid						
<u>Official Development Assistance</u>	<u>All Types, Total</u>		29.846	20.480	16.198	11.015	12.166
	Budget support		..	..	..	..	..
	Core contributions and pooled programmes and funds		0.481	0.118	..	0.135	0.313
	Project-type interventions		27.835	19.798	15.416	9.999	11.579
	Experts and other technical assistance		1.482	0.519	0.737	0.828	0.269
	Scholarships and student costs in donor countries		0.048	0.044	0.045	0.053	0.005
	Debt relief		..	..	..	..	..
	Administrative costs not included elsewhere		..	..	..	..	..
	Other in-donor expenditures		..	..	..	..	..
	<u>Not applicable</u>		..	..	..	..	..
	<u>Other Official Flows (non Export Credit)</u>	<u>All Types, Total</u>		16.948	7.455	17.094	8.846	5.632
Budget support			..	..	..	..	..
Core contributions and pooled programmes and funds			..	..	..	..	..
Project-type interventions			..	..	17.094	8.299	5.632
Experts and other technical assistance			..	..	..	..	..
Scholarships and student costs in donor countries			..	..	..	..	..
Debt relief			..	..	..	..	..
Administrative costs not included elsewhere			..	..	..	..	..
Other in-donor expenditures			..	..	..	..	..
<u>Not applicable</u>			16.948	7.455	..	0.547	..
SHA-relevant foreign aid as displayed in the CRD of OECD DAC							17.793

Source: OECD Credit Reporting System, <http://stats.oecd.org/Index.aspx?DataSetCode=CRS1>

That said, not all foreign aid should be allocated to the financing schemes “rest of the world” (HF.4). Some of the foreign transfers should be considered as revenue streams benefitting domestic financing schemes (e.g. HF.1.1). Table 5.6 provides a correspondence between types of foreign aid, the revenue classification and the financing scheme classification.

Table 5.6. Correspondence between SHA 2011 and type of aid in DAC statistics

	CRS/DAC		SHA 2011		Notes
	Type of aid (CRS/DAC)		Revenues of health financing schemes	Possible financing schemes	
A	Budget support				
A01	General budget support	FS.2	Transfers distributed by government from foreign origin	Governmental scheme	In the absence of information to the contrary, it might be assumed that only governmental health schemes receives revenues from foreign general budget support (Note (1))
A02	Sector budget support	FS.7	Direct Foreign transfers (Mainly: Direct Bilateral financial transfers or Direct Multilateral financial transfers	Governmental scheme	Note (2)
		FS.2	Transfers distributed by government from foreign origin	NPISH financing schemes	Note (2)
B	Core contributions and pooled programmes and funds				
B01	Core support to NGOs, other private bodies, PPPs and research institutes	FS.7	Direct Bilateral financial transfers Direct Multilateral financial transfers Direct Bilateral aid in goods Direct Multilateral aid in goods	NPISH financing schemes Rest of the world financing schemes	B01 refers to funds that are paid over to NGOs (local, national and international) for use at the latter's discretion, contribute to programmes and activities which NGOs have developed themselves, and which are implemented with their own authority and responsibility (Note (3))
		FS.6.3	Other revenues from NPISH n.e.c.	NPISH financing schemes	Support accounted under B01 may go to domestic NGO that only raises funds both from domestic and foreign institutions and then supports (transfers money to) other NGOs acting as financing schemes (Note (4))
B02	Core contributions to multilateral institutions				The recipient multilateral institutions pool contributions so that they lose their identity and become an integral part of its financing assets. Only the next phase of the flows is reported under SHA 2011 (FS x HF) (Note (5))
B03	Contributions to specific-purpose programmes and funds managed by international organisations (multilateral, INGO)	FS.7	Direct Foreign transfers (subcategory depends on the nature of the contribution)	Rest of the world financing schemes	
B04	Basket funds/pooled funding	FS.7.1.2.	Direct Multilateral financial transfers	NPISH financing schemes	
		FS.7.1.2.	Direct Multilateral financial transfers	Rest of the world financing schemes	
C	Project-type interventions				
C01	Project-type interventions	FS.7	Direct Bilateral financial transfers Direct Multilateral financial transfers Direct Foreign aid in goods	Governmental financing schemes NPISH financing schemes Rest of the world financing schemes	
D	Experts and other technical assistance	FS.7.2.2.	Direct Foreign aid in kind: services (including TA)		

Table 5.6. Correspondence between SHA 2011 and type of aid in DAC statistic (cont.)

E	Scholarships and student costs in donor countries				Not accounted under core framework of SHA 2011
F	Debt relief	FS.2	Transfers distributed by Government from foreign origin	Governmental financing schemes	Note (6)
		FS.7.1.1 FS.7.1.2	Direct Foreign transfers	Governmental financing schemes	If the loan concerned is health-specific
G	Administrative costs n.i.e.				Not accounted under SHA 2011

(1) For simplicity, it is assumed that only governmental health financing schemes receive revenues from foreign general budget support. Transfers provided by government to other financing schemes come from domestic sources or foreign support earmarked to health.

(2) Sector budget support received by the government may be used in two ways: for the purposes of government operated health programmes and health facilities (accounted under SHA 2011 as Direct Foreign transfers: a revenue of governmental financing schemes), or for the purpose of supporting from this fund health programmes of NPISHs (accounted under SHA 2011 as **FS.2 Transfers distributed by Government from foreign origin**).

(3) Core support is provided to foreign NGO (A), which uses part of these funds to support foreign NGO (B) (not resident in the country) in implementing a vaccination programme in the recipient country. It is accounted as Direct bilateral/multilateral financial transfer (FS.7.11 /FS.7.1.2) to Rest of the world financing schemes (HF.4.2. Voluntary RoW schemes).

(4) Foreign support going to domestic NGO that raises funds both from domestic and foreign institutions and then supports (transfers money to) other NGOs acting as financing schemes. The NPISHs financing scheme receives its revenues from domestic NGO and it is likely that the origin of this revenues cannot be distinguished between foreign and domestic. In this case, the revenue is accounted as FS.6.3.

(5) ODA statistics report commitments made by donor countries to international organisations (that may not be used in the given accounting period). Such data are not included in SHA, as the main issue of SHA – from the point of view of foreign aid - is to reports the revenue-raising by financing schemes.

(6) Debt relief is treated as a specific kind of Budget support.

Source: Adapted from OECD (2014), *Guidelines for the Implementation of the SHA 2011 Framework for Accounting Health Care Financing*, https://www.oecd.org/els/health-systems/Financing%20Guidelines_27Jan2014.pdf

There is reason to assume that some parts of official development assistance to Kazakhstan are channelled through the Kazakh government or resident NPISH agencies. In that case, the financing scheme should not be rest of the world (HF.4) but domestic financing schemes (HF.1 or HF.2). If foreign donors channel their aid through the Kazakh government the revenues should be considered as transfers distributed by government from foreign origin (FS.2) rather than direct foreign transfers (FS.7).

Proposed methodological improvements

One weakness in the NHA in RK is the lack of reconciliation (triangulation) of data sources across different health expenditure dimensions. There are huge benefits to be gained by comparing data from the different financing agents with revenues from the health providers obtained from cost, business or industry statistics. This can either validate the accounting approaches or point to areas where improvements could be made. In many cases inaccuracies are due to weaknesses in the measurement of private health spending, in particular, out-of-pocket spending. In this section, aggregate spending figures in the NHA of RK are compared – to the extent possible- to the “Volume of service” (VOS) and the “Financial and economic” (FAE) statistics from the Committee for Statistics.

Table 5.7 shows an extract of the NHA limited to the items included in the VOS and the FAE statistics (i.e. pharmaceuticals, technical devices and administrative spending are excluded).

Table 5.7. Extract of NHA of RK 2014 HPxHF table

	HF.1	HF.1.1.1	HF.1.1.2	HF.2	HF.2.1	HF.2.3	HF.3	HF.4	All HF
HP.1	323	216	106	14		14	53	2	392
HP.2	4		4						4
HP.3	242	11	231	22		22	111		375
HP.3.1	211	8	203	15		15	15		241
HP.3.2				2		2	96		98
HP.3.3	28		28			5			33
HP.3.4	3	3							3
HP.4	48	8	40				36		84
HP.6	40	12	28						40
HP.13	1	0	1						1
All HP	657	248	410	36		36	200	2	896

Source: Republican Center for Healthcare Development, Kazakhstan.

In the notes to the VOS statistics the sum of all services provided by organisations with the main activity of health care and social activities is valued at KZT 816 billion (of which KZT 807 million is due to health and social activities). From a provider perspective, KZT 502 billion were provided in hospitals, KZT 106 billion from organisations involved in general medical practice, KZT 110 billion from organisation involved in other human health activity and KZT 39 billion from organisations that provide social services with accommodation. Table 5.8 shows more detail information on the health and social activities provided for all health and social care organisations (without other secondary activities).

It should be stressed that there is a difference between the activity and provider perspective. A health provider can engage in more than one activity. A hospital, for example can engage in inpatient activity but also in outpatient activity. For a more meaningful analysis this information should also be available for each individual group of health providers (and not only on the aggregate level) and analysed further.

Table 5.8. Revenues from health and social work activities by all health and social care organisations

Activity	The code for the type of CPA services	During the reporting period just	financed from		
			government	population	enterprises
HUMAN HEALTH AND SOCIAL WORK SERVICES	Q	807	664	96	48
Human health services	86	764	621	95	47
Hospital services	86.10.1	446	400	33	14
General medical practice services	86.21.1	146	115	16	15
Specialist medical practice services	86.22.1	45	32	8	5
Dental practice services	86.23.1	21	5	14	2
Other human health services	86.90.1	105	69	24	12
Residential care services	87	38	38	0	0
Residential nursing care services	87.10.1	1	1	0	0

Table 5.8. Revenues from health and social work activities by all health and social care organisations (cont.)

Residential care services for mental retardation, mental health and substance abuse	87.20.1	16	15	0	0
Social work services without accommodation	88	5	5	0	0
Social work services without accommodation for the elderly and disabled	88.10.1	1	1	0	0
NHA relevant OOP spending		782	639	95	48

Source: Adapted from Statistics Committee, Ministry of the National Economy, Kazakhstan, *Volume of Service statistics*.

The FAE statistics also includes valuable information that can validate the NHA accounting practice. Table 5.9 is an amended version of Table 2.1 from the FAE statistics.

The table identifies potentially relevant health spending of around KZT 915 billion. However, more than KZT 100 billion are due to social services which may be health care related or may go beyond the SHA boundary. Interestingly, the NHA relevant income for hospitals (KZT 501 billion) and organisations involves in general practices (KZT 106 billion) have near identical values as those in the VOS statistics. Deviations between the two statistics are particular significant for other organisation of human health care and social care providers with accommodation, which requires further analysis.

Table 5.9. Current income for all health and social care organisations

2014, in bn KZT	Total	including:							
		Human health activities	of which					provision of social services with accommodation	provision of social services without accommodation
			Hospitals	General practice	Special medical practice	Dental practice	other provider engaged in human health activities		
Current income	934	805	512	108	39	19	127	124	5
Current transfers	731	604	431	71	24	3	74	123	4
--- From the national budget	430	427	309	56	24	2	36	2	0
--- From the local budget	295	171	118	14	1	1	37	120	4
--- Income from voluntary contributions and donations	6	5	4	0	0	0	1	1	0
Value of services provided and goods sold	184	183	70	35	14	15	50	1	0
Net income from the resale of goods	7	7	4	1	1	0	2		0
Property income	1	1	0	0	0	0	0		
Other operating profit (e.g. net income from sales of capital assets)	11	11	7	1	0	0	2	0	0
NHA relevant OOP spending	915		501	106	38	19	123	123	5
	All HP	HP1	HP3	HP3	HP3	HP3	HP3/HP4	HP2	HP3

Source: Adapted from Statistics Committee, Ministry of the National Economy, Kazakhstan, *Finance and economic statistics*, Table 2.1.

However, the fact that the two statistical sources show nearly identical values for hospitals suggests that in the NHA of RK hospital expenditure may be underestimated. On the other hand, dentist expenditure appears to be heavily overestimated.

Triangulation of data sources

To increase the robustness of NHA estimates, a number of countries integrate sources from different perspectives to balance out certain individual shortcomings. The weakest element of financing scheme data sources is often the data for out-of-pocket spending generated directly or indirectly from household budget surveys (HBS). Generally, the HBS can be biased due to sampling errors (e.g., non-representative, non-responses and seasonal variations) and non-sampling errors (e.g., survey design and recall periods). For some spending elements included in the HBS, other sources from the provider side can be used to validate or refute the estimates and trends derived from the HBS. This can refer, for example, to tax statistics (income or value added), industry statistics measuring revenues, output and costs or other statistics. Using these data sources for NHA can come with their own challenges. It needs to be clearly understood which providers are covered in the statistics and whether exemptions exist. The price concept behind the measurement of revenues also needs to be clear. If statistics are based on a further survey, then additional problems with sampling errors can also exist. Small differences when comparing health spending from the financing side with those from providers are unavoidable. However, if large unexplainable differences persist, it will require country experts compiling health accounts to judge which data source is likely to be more reliable.

To circumvent the problem of using a less reliable data source for the estimation of current health spending, it seems that the two statistics “volume of service” and “financial and economic activity” could be used to estimate out-of-pocket spending from selected providers. Nevertheless, there are also some differences between those statistics which need to be analysed first (Table 5.10).

At first sight, the “volume of service” and “financial and economic activity” statistics should not display fundamentally different figures. Clearly, current income can comprise additional income beyond that generated through the provision of health care good and services, but they are relatively close for a number of providers. Hence, one strategy to help improve the validity of health accounts data could be to refer to the total revenues generated from human health and social work statistics for hospitals, general practice, special medical practice and dentists as benchmark values for the HP classification. Additionally, Tables 2.1 to 2.7 can help to create a functional breakdown for each of the providers by mapping health services from the CPA code into HC categories. They also provide information about payments by the population for providers and activity. If these values are used as a benchmark HP value, this can mean that some of the allocation key for transactions funded by other financing schemes (e.g. local budgets) need to be calibrated, away from a one-to-one provider-function allocation to a more precise split.

Table 5.10. Difference in the volume of service and the financial and economic activity statistics

	During the reporting year , total	including :								
		health activities	of them					provision of social services with accommodation	provision of social services without accommodation	
			hospital	general practice	Special medical practice	Dentists	other activities to protect human health			
FEA table 6.1	979 077	848 430	541 650	114 243	42 041	19 284	131 210			
earnings	845	944	810	523	466	149	996	125 624 509	5 022 392	
expenses	977 725	847 984	543 973	115 173	40 060	16 587	132 190			
profit (loss)	440	678	167	848	338	102	223	124 745 734	4 995 028	
before tax	2 166	1 260	-1 732		1 981	2 733				
	697	558	000	-872 549	128	607	-849 628	878 775	27 364	
FAE table 2.1	933 662	805 205	511 949	108 157	39 212	18 948	126 937			
Current income	003	052	478	674	540	262	098	123 551 773	4 905 178	
Current transfers	730 541	603 754	430 908	71 223	24 471	3 257	73 893			
From the national budget	195	762	841	648	579	632	062	122 522 673	4 263 760	
From the local budget	430 109	427 326	308 963	56 451	23 509	1 967	36 433			
income	782	220	385	905	318	810	802	2 374 475	409 087	
from voluntary contributions and donations	294 765	171 443	118 344	14 298		1 289	36 574			
Value of services provided and goods sold	628	996	324	139	937 222	538	773	119 617 630	3 704 002	
Net income from the resale of goods	5 665	4 984	3 601	473 604	25 039	284	884 487	530 568	150 671	
Property income	785	546	132							
Other operating profit	184 333	183 068	69 690	34 636	13 837	15 335	49 567	916 160	348 780	
	354	414	742	686	923	355	708			
	7 226	7 147	4 191	606 532	538 822	133 000	1 676			
	371	006	916				736	-	79 365	
	651 361	651 361	234 482	319 583	58 339	425	38 532	-	-	
	10 909	10 583	6 923	1 371			1 761			
	722	509	497	225	305 877	221 850	060	112 940	213 273	
VOS tables 2.1-2.7	Revenues from health, social work and secondary activities	816 427	771 901	501 645	105 676	36 460	18 142	109 976	39 467 867	5 058 168
	CPA Q: Human Health and social work services	132	097	900	235	219	172	571		
	CPA 86: Human Health services	807 081	763 304	493 978	105 358	36 320	18 019	109 628	39 084 694	4 691 561
	CPA 87: Residential care services	204	949	250	200	562	245	692		
	CPA 88: Social work services without accommodation	763 892	763 083	493 761	105 355	36 320	18 019	109 625	771 736	37 662
	CPA Other: Secondary activity	490	092	606	753	562	245	926		
		38 166	5 328	5 328	0	0	0	0	38 157 571	3 633
		532								
		5 022								
		182	216 529	211 316	2 447	0	0	2 766	155 387	4 650 266
		9 345	8 596	7 667						
		928	148	650	318 035	139 657	122 927	347 879	383 173	366 607

Source: Statistics Committee, Ministry of the National Economy, Kazakhstan, *Volume of Service and Financial and Economic statistics*.

For the provision of social services with accommodation, an examination should first be made to analyse the huge differences between income and revenue in the two statistical sources before deciding which of the data is more appropriate. The value of other activities to protect human health is remarkably high in Kazakhstan. In theory, this should refer to pregnancy related services, physiotherapeutic services, ambulance services, laboratory and diagnostic services and mental health services etc. It should be analysed to what extent this is also true in Kazakhstan or whether some health care organisations are wrongly allocated in this provider group in the statistics.

5.2. Revenues of the financing schemes (FS)

As mentioned in Section 4.2.5, the reporting of revenues of financing schemes is intrinsically linked to health spending for each financing scheme (HF) and the grouping of revenues into FS categories is based on the information already included in the prime data sources used to measure current health expenditure by financing schemes. Mapping expenditure of financing schemes to how these expenditures are funded is an approach also taken by many OECD countries. As a result, the expenses of a scheme always equate with their revenues. In theory, the FSxHF table allows for the possibility to account for revenues and expenses separately, potentially highlighting deficits or surpluses of each health financing schemes within the reporting period.

The allocation of revenues into FS categories in the NHA of RK is a generally straightforward one-to-one correspondence. As mentioned in Section 4.2.5, the grouping of some revenue streams should be verified. This relates to the question of who pays the premiums of voluntary health insurance (HF.2.1) and the revenues of employer financing schemes (HF.2.3), which most likely will be entirely funded by other revenues from corporations (FS.6.2). As described in Section 5.1.4, the accounting of foreign aid should also be revisited. This affects the financing scheme HF.4 as well as the revenue classification. If foreign aid is channelled through domestic governments, these transfers should be accounted for as FS.2; if, however, foreign aid is made directly to the financing scheme then these revenues should be classified as FS.7. The same is true if foreign NGOs finance and provide health care themselves in Kazakhstan.

5.3. Factors of health care provision (FP)

Kazakhstan identifies factors of provision from Table 4.1 of the “Financial and economic activities” statistics which provides a detailed list of cost items for the seven provider categories. The mapping from input costs to the factors of provision (Table 5.11) appears sound, although some issues are highlighted below.

First, the individual cost components do not sum up to the total operating costs. This should be raised as an issue with the Statistical Committee. Second, the list of costs related to wages should be scrutinised to assess the difference between the different types of social insurance contributions highlighted and to see whether it refers to the share covered by the health care facilities in their function as employers. Finally, operating costs as displayed in Table 4.1 of the financial and economic activity statistics are very close to the current income reported in Table 2.1 of the financial and economic activity statistics indicating little operating surplus or self-employed professional remuneration (FP.2). If that does not reflect the actual situation in Kazakhstan it should be analysed to what extent self-employed income is also included in wages – which are reported under FP.1.

Table 5.11. Identified cost components for all health and social care organisations

	Total in thsd KZT for all providers, in the reporting period	Mapping
Operating costs	926 047 992	
The total cost for the maintenance of labour	481 640 475	FP.1.1
Wages Fund	435 305 398	
- Individual income tax	30 156 691	
- Deductions of mandatory pension contributions to pension funds	41 631 290	
Purchase of food	45 375 344	FP.3.4
Purchase of medicines and bandaging materials	168 683 204	FP.3.2
Purchase of fuel	9 457 264	FP.3.4
Purchase of goods and materials for the current purposes	29 121 703	FP.3.4
Purchase of soft inventory and uniforms	7 548 428	FP.3.4
Rent of fixed assets	5 026 247	FP.4
Service delivery costs	107 231 988	FP.3.3
- Transport services	6 769 237	
- Communication services	3 270 773	
- Utilities (water, sewage, heating and electricity)	28 606 203	
- Services of consulting, information and audit firms	1 844 307	
- Litigation, arbitration, notarial services	96 217	
- Services in marketing, advertising	1 254 678	
- Current repair of buildings and structures	5 590 652	
- Current repairs of machinery and equipment (including vehicles)	5 984 554	
- Other	53 815 367	
Paid property income	1 269 479	FP.5.2
- Percent	543 999	
- Dividends	725 480	
Depreciation for the period (fixed assets and intangible assets), total	33 410 089	FP.4
Other operating expenses	81 511 175	
Taxes	4 744 503	FP.5.1
- Corporate income tax	1 037 408	
- Land tax	129 794	
- Property tax	878 035	
- Value added tax	1 309 663	
- On vehicle tax	93 181	
- Excise duties	318	
- Other taxes	1 296 104	
Other obligatory payments and fees	43 255 831	
- Social security contributions	17 190 649	FP.1.2
- Social tax	24 689 684	FP.1.2
- Other deductions	1 375 498	FP.1.3
Other expenses	33 510 841	FP.5.2

Source: Adapted from Statistics Committee, Ministry of the National Economy, Kazakhstan, *Financial and Economic Activity Statistics*, Table 4.1.

To estimate total spending per factor of provision, different input cost groups are summed up across providers and allocated into one factor of provision group. Input groups referring to the same factor of provision category are lumped together and divided by the total operational costs to calculate the share of each of factors of provision category with the sum of shares adding up to 100%. To arrive at the actual costs per factor of provision category, these share are multiplied with an adjusted total spending figure – total health spending [including all health care related items recorded in Kazakhstan minus capital formation (HC.RI.5) minus medical goods (HC.5)]. Hence, factors of provision are only reported on an aggregate level and not on provider level. This approach limits the usefulness of this classification dimension. This prevents a comparison of input costs between providers, while at the same time it impedes international comparability due to the country-specific adjustment of the aggregate.

A more desirable approach would be to limit the analysis to those providers for which input costs are available, eventually extending coverage to additional providers over time. For an estimation of input costs of hospitals, general practices, special medical practices, dental practices and social service facilities with and without accommodation, Table 4.1 of the “financial and economic activities” statistics appears to be a suitable data source. For each provider the share of costs can be multiplied with current health spending measured in the core SHA framework. Again, caution should be exercised as to what extent self-employed professional income and surplus/deficits (to be accounted for under FP.2) are properly covered in the base statistics.

5.4. Summary of recommendations

There are a number of recommendations as to how the methodology of the NHA in RK could be improved:

The use of the “Volume of services” (VOS) statistics and the “Finance and economic” (FAE) statistics may help improve spending estimates, particularly regarding out-of-pocket spending (HF.3). There are huge differences in spending for health care services recorded in the HBS and in the VOS and the FAE statistics, which need to be analysed in detail, but a preliminary assessment suggests that the VOS and the FAE could be more reliable. However, for pharmaceutical and medical good as well as for informal payment, the HBS would appear to be the only viable source.

The VOS statistics can also help in the breakdown of budget items in the federal and regional budgets. Currently, most are 100% allocated to a single HC and HP category possibly leading to an inaccurate allocation of expenditure. For example, health expenditure in hospitals in the NHA of RK is 20% less than in the VOS and FAE statistics. Information from the VOS statistics may create improved allocation keys.

The FAE statistics should be further assessed to ascertain whether they can be used to estimate spending from non-profit institutions (HF.2.2) after checking the approach used to identify final consumption by NPISH in the National Accounts. Table 2.1 of the FAE statistics displays the information with regards to the source of income including voluntary contributions and donations, which suggests that this can include health expenditure by non-profit institutions.

There should be a review of the estimates of spending by private health insurance (HF.2.1) in line with SHA 2011 recommendations and the allocation to the appropriate functions. It should also be clarified where spending by VHI is recorded in the VOS and the FAE statistics.

Further analysis is recommended to determine whether there is some double counting with regards to the recording of spending by voluntary health insurance (HF.2.1) and employers (HF.2.3) and whether all transactions currently recorded under HF.4 are made from financing schemes outside of the territory of Kazakhstan for the resident population.

There should be a further investigation of the VOS and the FAE statistics to estimate spending for long-term care (HC.3) which is currently underreported.

For the recording of financing sources, the composition of the revenues of voluntary health insurance (HF.2.1) and employers (HF.2.3) should be revisited as well as whether foreign aid is properly accounted for.

The starting point for the analysis of factors of provision should be the individual provider for which solid data sources are available before eventually covering all HP and hence the aggregate value of current health spending.

Notes

1. But it needs to be remembered that Kazakhstan also uses HC and HP categories that go beyond the SHA 2011 recommendations.
2. The NACE is Statistical classification of economic activities in the European Community.
3. The CPA is a version of the Central Product Classification (CPC) used and developed by the European Union.
4. http://www.oecd.org/els/health-systems/Financing%20Guidelines_27Jan2014.pdf

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Chapter 6

Adjusting NHA of RK to improve comparability with OECD countries

The System of Health Accounts 2011 framework considers current health expenditure (which equates to final consumption expenditure of resident units on health care goods and services) as the main spending aggregate and most international comparisons are based on this aggregate and its subcomponents. It is therefore important to report current health expenditure in a comparable fashion.

The first three sections of this chapter describe the various adjustments made to the three core tables (Functions by Financing Schemes, Functions by Providers and Providers by Financing Schemes) and the Financing Schemes by Revenues table, as well as the impact on current health expenditure. This is followed by a section that uses the adjusted NHA data to provide an overview of how health expenditure in Kazakhstan compares to OECD countries.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

6.1. Introduction

Based on an in-depth study of the National Health Accounts (NHA) in the Republic of Kazakhstan (RK), the OECD made some adjustments to the currently available NHA tables with the objective of improving the comparability with OECD countries. It is important to note that these adjustments are limited to classification and compilation issues in the NHA tables submitted to the OECD in January 2016. As such, they do not take into account some of the more fundamental recommendations on data sources and methodology given in Chapters 4 and 5. The implementation of these recommendations would make further adjustments necessary.

While some of the adjustments are reallocations of spending items within current health expenditure (i.e. the structure but not the level of current health spending is affected), other adjustments also lead to changes in the overall level of current health expenditure. This is the result of either previously excluded spending items being added back into the current health expenditure total or previously included spending items being excluded. All the described adjustments refer to the 2014 NHA tables submitted to the OECD in January 2016 but they have been conducted retrospectively for the 2013 NHA tables. The adjusted 2014 NHA tables are shown in Annex 2.

6.2. Adjusting the core tables (HCxHF, HCxHP, HPxHF)

Generally, the allocation of spending items to HC, HP and HF appears to be in line with the SHA 2011 definitions. However, some recommended adjustments are made with the potential to improve international comparability of the NHA of RK. This includes the reallocation of spending items within current health expenditure, the exclusion of certain spending items from current health expenditure and the inclusion of certain spending items in current health expenditure. This section also includes some reporting recommendations for the spending items that go beyond the boundary of current health expenditure, in the context of national policy requirements, as well as recommendations on a number of other compilation issues.

Reallocation within current health expenditure

HC.2.5 Restorative rehabilitation

The category HC.2.5 does not exist in the SHA 2011 HC classification. It is understood that it is related to restorative care (rehabilitation) services provided to inpatients in restorative and rehabilitative care hospitals. Therefore, it is recommended to relocate HC.2.5 to “HC.2.1 Inpatient rehabilitative care” in the HCxHF and HCxHP tables (without changing HF or HP). If it is of national interest to identify separately the information currently attributed to HC.2.5, a specific sub-category (i.e. HC.2.1.x) could be created for national reporting. As HP and HF are not affected, the HPxHF table does not change. However, it is recommended to revisit the choice of the provider category in consideration of a possible reallocation from “HP.1.1 General hospitals” to “HP.1.3 Specialised hospitals” as the latter includes specialised sanatoriums (primarily engaged in medical post-acute, rehabilitative and preventive services) (SHA 2011, p. 133).

HC.4.5 Provision of blood, its components and preparations (provided by HP.4.9)

The category HC.4.5 does not exist in the SHA 2011 HC classification. It is assumed that these services are components of an inpatient care package (that is, intermediate

consumption) rather than relating to direct consumption by outpatients and therefore it is suggested to reallocate them to “HC.1.1 Inpatient curative care” provided by “HP.1.1 General hospitals”. This means that in the HCxHF table HC.4.5 is added to HC.1.1 (with no change to HF), in the HCxHP table HC.4.5xHP.4.9 is reallocated to HC.1.1xHP.1.1 and in the HPxHF table, HP.4.9 is reallocated to HP.1.1 (with no change to HF). If required for national purposes, such an item can be identified under the Factors of Provision (FP) classification.

HC.4.9 All other support services (provided by HP.4.9, financed by HF.3)

The category HC.4.9 does not exist in the SHA 2011 HC classification. It is understood that the portion of HC.4.9 that is provided by HP.4.9 and financed by HF.3 refers to alternative/traditional health care services mainly in the ambulatory sector, and therefore it is suggested that it is reallocated to “HC.1.3.9 All other outpatient curative care n.e.c.” provided by “HP.3.3 Other health care practitioners”. This affects the three core tables as follows: in the HCxHF table HC.4.9xHF.3 is reallocated to HC.1.3.9xHF.3, in the HCxHP table HC.4.9xHP.4.9 is reallocated to HC.1.3.9xHP.3.3 and in the HPxHF table HP.4.9xHF.3 is reallocated to HP.3.3xHF.3. The SHA 2011 HC classification does, however, allow for the identification of TCAM (Traditional, Complementary and Alternative Medicine) under a HC Reporting Item (HC.RI.2) which can be further disaggregated into the modes of provision (SHA 2011, Table 5.3).

It should also be noted that HC.1.3.9 is not part of the functional classification as laid out in SHA 2011, but represents a residual category of outpatient curative care in the questionnaire that is used to collect health accounts data from OECD countries. It is recommended to review the included spending items with a view to allocate to the other relevant categories of outpatient care (i.e. HC.1.3.1, HC.1.3.2, HC.1.3.3 and HC.2.3).

HC.5.2.4 All other additional medical durables including medical technical devices that are not specified by function

The category HC.5.2.4 does not exist in the SHA 2011 HC classification. The category “HC.5.2.9 All other medical durables including medical technical devices” typically serves as a residual category that comprises a wide variety of medico-technical devices (SHA 2011, p. 99). It is recommended to reallocate all HC.5.2.4 spending to HC.5.2.9 in the HCxHF and HCxHP tables (no changes to HF and HP). As HP and HF are not affected, the HPxHF table does not change.

Reporting of Voluntary Health Insurance (VHI) schemes

In the original NHA tables, spending by private health insurers for health care goods and services (“net expenses for insurance payment”) is recorded under “HC.7.2 Administration of health financing” provided by “HP.7.3 Private health insurance administration agencies” (in the HCxHP table the provider is HP.7.4) and financed by “HF.2.1 Voluntary health insurance schemes”, whereas administration expenditure related to private health insurance (“net premiums earned” minus “net expenses for insurance payment”) is recorded under HC.7.2xHP.7.3 financed by “HF.2.3 Enterprise financing schemes”.

It is understood that the majority of VHI coverage is used for outpatient services (HC.1.3). Therefore, in the HCxHF table the spending by private health insurers for health care goods and services (“net expenses for insurance payment”) is reallocated from HC.7.2xHF.2.1 to HC.1.3xHF.2.11 and, to avoid double-counting, these insurance payments are subtracted from HC.1.3xHF.2.3. Additionally, the administration expenditure of private health insurance (“net premiums earned” minus “net expenses for insurance payment”) is

reallocated from HC.7.2xHF.2.3 to HC.7.2xHF.2.1, as they refer to spending by voluntary health insurance schemes and not by enterprise financing schemes.

Similarly, in the HPxHF table, the insurance payments are reallocated from HP.7.3xHF.2.1 to HP.3xHF.2.1 and, to avoid double-counting, these insurance payments are deducted from HP.3xHF.2.3. Furthermore, administration expenditure of private health insurance was reallocated from HP.7.3xHF.2.3 to HP.7.3xHF.2.1.

In the HCxHP table, the insurance payments were originally recorded under HC.7.2xHP.7.4. The value reported under HC.7.2xHP.7.4 is removed since the category HP.7.4 does not exist in the SHA 2011 HP classification. No further adjustments were required because the insurance payments are already part of HC.1.3xHP.3.

HP.3.4.5 All other outpatient multi-disciplinary centres providing specialised outpatient care

The category HP.3.4.5 does not exist in the SHA 2011 HP classification. The category “HP.3.4.9 All other ambulatory centres” typically serves as a residual category that comprises establishments that provide a wide range of outpatient services including multi-specialty outpatient centres (SHA 2011, p. 141). All HP.3.4.5 spending is reallocated to HP.3.4.9 in the HCxHP and HPxHF tables (no changes to HC and HF). As HC and HF are not affected, the HCxHF table does not change.

Excluding items from current health expenditure that were previously included

HC.4.4 Pathological services

The category HC.4.4 does not exist in the SHA 2011 HC classification. The primary purpose of pathological services may not be health and furthermore, these types of services are typically not for final consumption. Consequently, this category was removed from current health expenditure: in the HCxHF and HCxHP the category HC.4.4 was removed, in the HPxHF table HC.4.4 spending was subtracted from HP.8.9xHF.1.1.2.

HC.4.9 All other support services (provided by HP.11, financed by HF.1.1.2)

The category HC.4.9 does not exist in the SHA 2011 HC classification. It is understood that the portion of HC.4.9 that is provided by HP.11 and financed by HF.1.1.2 (“Maintenance of the newly introduced health facilities”) refers to capital formation rather than current health expenditure. Thus, HC.4.9xHP.11xHF.1.1.2 is excluded from current health expenditure. However, this spending item should be included in the aggregate gross fixed capital formation of health care providers which is recorded under HK.1.1 in the capital account (SHA 2011, Chapter 11).

Including items in current health expenditure that were previously excluded

HC.RI.3.1 Maternal and child health; family planning and counselling

Services of maternal and child health are considered as preventive care services within the boundary of current health expenditure. Since it is assumed that the included services mainly serve the purpose of monitoring mother and child health, this item was allocated to “HC.6.4 Healthy condition monitoring programmes” in the HCxHF and HCxHP tables (with no changes to HF and HP). The HPxHF table is not affected by these changes as HC.RI.3.1 was already included in the original version of the table. While the provider category of the

maternal and child health services is not changed, it is recommended to review the current allocation to “HP.2.9 Other residential long-term care facilities” as it seems unlikely that such services would be provided in a long-term care institution.

HC.RI.3.9 All other miscellaneous public health services

It is understood that this item refers to the promotion of healthy lifestyles, which is part of preventive care services within the boundary of current health expenditure. This item is therefore included in the HCxHF and HCxHP tables under “HC.6.1 Information, education and counselling programmes” (no changes to HF and HP). The HPxHF table is not affected by these changes as HC.RI.3.9 was already included in the original version of the table.

HC.RI.7 Sanitary-epidemiologic security provision

This item would seem to cover the control of infectious diseases. Since such activities are part of preventive care, this spending item should be added back into current health expenditure. It has been reallocated to “HC.6.5 Epidemiological surveillance and risk and disease control programmes” in the HCxHF and HCxHP tables (no changes to HF and HP). The HPxHF table is not affected by these changes as HC.RI.7 was already included in the original version of the table.

HC.RI.9.5 Consulting, analytical and sociological research

The category “HC.7.1 Governance and health system administration” includes planning, policy formulation and information intelligence for the entire health system including research, development and implementation of innovative interventions to set standards, among other activities (SHA 2011, p. 106). It is understood that HC.RI.9.5 fits this description and therefore it was reallocated from HC.RI.9.5xHP.11xHF.1.1.2 to HC.7.1xHP.7.1xHF.1.1.2.

HC.RI.11 Other expenditure types

It is understood that the category HC.RI.11 covers a broad range of activities and it is currently not entirely clear whether all spending items allocated to HC.RI.11 refer to the final consumption of health care goods and services. A further analysis of the various items included and its allocation to SHA categories is recommended. Nevertheless, the part of HC.RI.11 that is provided by HP.11 and financed by HF.2.3 was reallocated to HC.1.3.9xHP.3.3xHF.2.3 since it is assumed that enterprises mainly finance ambulatory services. All the remaining HC.RI.11 spending was allocated to “HC.0 Other health care services unknown” provided by “HP.0 Providers unknown” (no changes to HF). The HPxHF table is not affected by these changes as HC.RI.11 was already included in the original version of the table.

HC.RI.12 Informal expenditure

In line with the SHA 2011 definitions, informal payments are correctly considered as a part of “HF.3 Household out-of-pocket payments”. In the original NHA tables, informal payments are recorded under HC.RI.12 and therefore not included in current health expenditure. However, it is understood that informal payments in Kazakhstan are primarily made to doctors in connection with inpatient care services such as surgeries or child birth. Therefore, these payments do indeed refer to the consumption of health care goods and services and should be considered as part of current health expenditure. Hence, all informal expenditure was reallocated to HC.1.1xHP.1.1xHF.3.

Other items outside of current health expenditure

In the original NHA tables, the following items are already correctly reported outside of current health expenditure. These items are reported separately from the core HC classification (HC.1-HC.7, HC.0) in the HCxHF and HCxHP tables but they are an integral part of the original HPxHF table. As a result, to calculate current health expenditure from HCxHF or HCxHP these items can simply be disregarded, but to calculate current health expenditure from the HPxHF table these items have to be subtracted first in order to make it consistent with the HCxHF and HCxHP table.

HC.RI.4 Education and training of medical staff

SHA 2011 considers expenditure on education and training not as current health expenditure but treats it as capital-related expenditure that should be recorded under the memorandum item “HKR.5 Education and training of health personnel” in the capital account (SHA 2011, Chapter 11). In order to make the HPxHF table consistent with current health expenditure as shown in the HCxHF and HCxHP tables, HC.RI.4 expenditure is deducted from HP.8.2xHF.1.1 in the HPxHF table.

HC.RI.5 Capital formation of health care providers

While current health expenditure refers to final consumption expenditure of resident units (households, government and non-profit institutions) on health care goods and services, capital formation refers to the demand for capital goods by health care providers. Due to the conceptual differences, HC.RI.5 is correctly reported outside of current health expenditure in the HCxHF and HCxHP tables. To our understanding, HC.RI.5 refers to gross fixed capital formation and should be reported under HK.1.1 in the capital account (SHA 2011, Chapter 11). Since in the original HPxHF table capital formation is not kept separately, HC.RI.5 expenditure is deducted from HP.8.9xHF.1.1 and from HP.11xHF.1.1 to make it consistent with the other core tables.

HC.RI.6 Applied scientific research

Similarly to education and training, SHA 2011 considers expenditure on research and development as capital-related expenditure and not as part of current health expenditure or capital formation. HC.RI.6 should be reported as a memorandum item (“HKR.4 Research and development in health”) in the capital account (SHA 2011, Chapter 11). The HPxHF table is adjusted by subtracting HC.RI.6 expenditure from HP.8.9xHF.1.1.

HC.RI.9.1 Forensics

The primary purpose of forensics might not be health and these services are typically not for final consumption. It is agreed to keep spending on this category outside of current health expenditure. To reach consistency between the HPxHF table and the other core tables, HC.RI.9.1 expenditure is deducted from HP.8.9xHF.1.1.

HC.RI.9.2 Storage of valuables and historical heritage of health care

SHA 2011 refers to valuables as produced goods of considerable value usually held as a store of value over time which are recorded in the capital account under “HK.1.3 Acquisition less disposals of valuables” (SHA 2011, Chapter 11). It is recommended that HC.RI.9.2 expenditure should be accurately recorded under HK.1.3. As no expenditure was recorded under this category in the 2014 NHA, there was no need to make any adjustments to the HPxHF table.

HC.RI.9.3 Creation and maintenance of health information systems

It is understood that this item refers mainly to the establishment of health information systems and we would therefore see it as part of gross fixed capital formation. In the capital account (SHA 2011, Chapter 11) the categories “HK.1.1.2.3 ICT equipment” and “HK.1.1.3.1 Computer software and databases” are potential categories for reporting HC.RI.9.3. In the HPxHF table, HC.RI.9.3 expenditure is subtracted from HP.11xHF.1.1.

HC.RI.10 Storage of special medical goods and equipment to be used in the event of a catastrophic occurrence

SHA 2011 makes reference to the storage of special medical goods and equipment as an example of what should be included in the capital account under “HK.1.2 Changes in inventories”, where inventories are defined as “produced assets that came into existence in the accounting period or in an earlier period, and that are held by health providers for sale, use in production or use at a later date” (SHA 2011, p. 259). To ensure consistency between the core tables, HC.RI.10 spending in the HPxHF table is deducted from HP.13xHF.1.1.

Compilation issues*Breakdown of “HC.1.1 Inpatient curative care” into HC.1.1.1 and HC.1.1.2*

The breakdown of “HC.1.1 Inpatient curative care” into the subcomponents “HC.1.1.1 Specialised medical care” and “HC.1.1.2 Highly specialised medical care” should be reconsidered as it does not appear to be in line with the breakdown put forward by SHA 2011. SHA 2011 distinguishes between “HC.1.1.1 General inpatient curative care” and “HC.1.1.2 Specialised inpatient curative care”.

HC.5.1.1 Prescribed medicines

It is understood that over-the-counter medicines are included in the category “HC.5.1.1 Prescribed medicines”. In order to avoid any misinterpretation, it is recommended to remove the category HC.5.1.1 and only report the 2nd-digit-level, i.e. “HC.5.1 Pharmaceuticals and other medical non-durable goods”.

Re-labelling of the categories HP.5.3 and HP.11

The categories HP.5.3 and HP.11 do not exist in the SHA 2011 HP classification. Therefore, HP.5.3 has been relabelled as “HP.5.9 All other miscellaneous sellers and other suppliers of pharmaceuticals and medical goods” and HP.11 as “HP.0 Providers unknown”. Please note that HP.0 is not part of the provider classification laid out in SHA 2011, but represents a residual category in the questionnaire that is used to collect health accounts data from OECD countries.

6.3. Adjusting the revenues of health care financing schemes table (HFxFS)

The adjustments in the three core tables also make some amendments in the HFxFS table necessary in order to ensure consistency between all the NHA tables. As all financing schemes, with the exception of HF.1.1.2, receive their revenues from only one source, the adjustments to the HFxFS table are mostly straightforward: HF.1.1.1 in the HFxFS table was aligned to HF.1.1.1 in the HCxHF and HPxHF tables by adjusting the cell HF.1.1.1xFS.1.1.1, HF.3 by adjusting HF.3xFS.6.1 and HF.4.2 by adjusting HF.4.2xFS.7.3.

The financing scheme HF.1.1.2 partly receives its revenues from transfers from the federal budget (FS.1.1.1) and partly from local budgets (FS.1.1.2). Hence, to align HF.1.1.2 in the HFxFS table with HF.1.1.2 in the HCxHF and HPxHF tables, FS.1.1.1 and FS.1.1.2 need to be adjusted. For the spending items that should be excluded from current health expenditure, it was possible to identify from the local budgets which part is funded via transfers from the federal budget (FS.1.1.1) and which part from the local budgets (FS.1.1.2). Only for “HC.RI.4 Education and training of medical staff” financed by HF.1.1.2 was it not possible to make this distinction. It was assumed that all HF.1.1.2 spending on HC.RI.4 stems from the local budgets and therefore only FS.1.1.2 was corrected.

With regards to the financing schemes HF.2.1 and HF.2.3 some further adjustments were necessary in order to reflect the nature of VHI schemes in RK. In the original HFxFS table, HF.2.1xFS.5.1 contains “net expenses for insurance payment” and HF.2.3xFS.5.1 contains “net premiums earned” minus “net expenses for insurance payment”. We have summed up HF.2.1xFS.5.1 and HF.2.3xFS.5.1 to get “net premiums earned” and then allocated these to HF.2.1xFS.5.2. This means that “HF.2.1 Voluntary health insurance schemes” receive payments of premiums in the form of “FS.5.2 Voluntary prepayments from employers” as we understand that VHI in RK is offered through employers who pay the insurance premiums on behalf of their employees. Furthermore, we understand that the “net expenses for insurance payment” are already included under HF.2.3xFS.6.2 in the original HFxFS table. As the insurance payments are now part of the value allocated to HF.2.1xFS.5.2, they have to be subtracted from HF.2.3xFS.6.2 in order to avoid double-counting.

6.4. Impact of the adjustments on the level and structure of current health expenditure

The various adjustments described above affect the level as well as the structure of current health expenditure. The three tables presented in this section provide a summary of the overall impact of the adjustments on current health expenditure along the functional, the provider and the financing schemes dimension.

Table 6.1 shows current health expenditure for the year 2014 disaggregated by function before (columns “Original”) and after adjustments (columns “Adjusted”). Without any adjustments current health expenditure amounts to KZT 1 225.9 billion (this corresponds to the value shown in section 2.4 of the NHA report for the reporting year 2014²). After the various adjustments, current health expenditure stands at KZT 1 277.3 billion which is equal to a net increase of 4.2% compared to the original NHA tables.

Within this overall increase, the impact on the individual health care functions varies. The biggest changes both in absolute and in relative terms can be observed for expenditure on ancillary services (HC.4). The adjustments lead to a 59% drop in expenditure on ancillary services, with the share of HC.4 in current health expenditure decreasing from 7.1% to 2.8%. As described earlier in this chapter, some previously under HC.4 recorded items were excluded from current health expenditure while others were reallocated to services of outpatient as well as inpatient care. The reallocation of some items that were originally recorded under HC.4.9 and HC.RI.11 to outpatient curative care (HC.1.3) leads to an 11.3% rise of HC.1.3 expenditure resulting in a 2 percentage point increase of its share of current health expenditure. Reallocating spending previously recorded as HC.4.5 to HC.1.1 as well as taking informal payments into account results in an increase in expenditure on inpatient care of 5.8%. The large increase (54.9%) in expenditure of preventive care (HC.6) can be explained by adding spending on maternal and child health and “Sanitary-epidemiologic security provision” back into current health expenditure. Finally, 1.7% of current health

expenditure are reported as “HC.0 Other health care services unknown” after adjusting the NHA tables. As already mentioned, the goal should be to clarify the nature of the activities included hereunder and bring the share of unallocated (i.e. HC.0) health expenditure as close as possible to zero.

Table 6.1. Impact of the adjustments on current health expenditure by function, 2014

Function	SHA codes	Million KZT			% of CHE	
		Original	Adj.	Diff. (%)	Original	Adj.
Inpatient curative and rehabilitative care (incl. day cases)	HC.1.1, HC.1.2, HC.2	405 097	428 624	5.8	33.0	33.6
Outpatient curative care	HC.1.3	364 433	405 486	11.3	29.7	31.7
Long-term care (health)	HC.3	260	260	0.0	0.0	0.0
Ancillary services	HC.4	86 884	35 620	-59.0	7.1	2.8
Medical goods	HC.5	331 904	331 904	0.0	27.1	26.0
Preventive care	HC.6	28 138	43 578	54.9	2.3	3.4
Governance and health system financing administration	HC.7	9 169	9 993	9.0	0.7	0.8
Other health care services unknown	HC.0		21 816		0.0	1.7
Current health expenditure (CHE)	HC.1-HC.7, HC.0	1 225 884	1 277 281	4.2	100.0	100.0

Source: Republican Centre for Healthcare Development, Kazakhstan (adjusted).

Table 6.2 summarises the changes broken down by the different health care provider categories and mostly mirrors the changes described in Table 6.1 from the providers’ perspective: spending on hospitals (HP.1) and ambulatory care providers (HP.3) increases in line with spending on inpatient curative care (HC.1.1) and outpatient curative care (HC.1.3), respectively; the decrease in spending on providers of ancillary services (HP.4) corresponds to the drop in HC.4 spending. The increase in expenditure on preventive care (HC.6) seen in Table 6.1 is the reason for both the upward shift in expenditure associated with providers of preventive care (HP.6) as well as residential long-term care facilities (HP.2). In the case of HP.2, the huge relative spending increase can be entirely ascribed to the reallocation of maternal and child health services. However, as already mentioned earlier, it is recommended to review the choice of the provider category for maternal and child health services. The decline in spending allocated to the rest of the economy (HP.8) stems from the exclusion of spending items that do not refer to the final consumption of health care goods and services (e.g. education and training of medical staff). Lastly, the rise in HP.0 spending corresponds to increased health expenditure under HC.0. As for HC.0, it is necessary to clarify who the relevant providers of these health care services are, in order to bring HP.0 as close as possible to zero.

Table 6.3 provides an overview of how the above described adjustments changed the composition of current health expenditure by financing schemes. With the exception of some reallocations within HF.2 (reallocations between HF.2.1 and HF.2.3 linked to the reporting of voluntary health insurance schemes, see above), no changes were made to the attribution of spending items to financing schemes. In other words, the changes shown in Table 6.3 are the net result of including spending items that were previously excluded from current health expenditure and excluding spending items that were previously included. Significant increases of spending by central government schemes (HF.1.1.1), voluntary health care payment schemes (HF.2) and rest of the world financing schemes (HF.4) can be observed.

Table 6.2. Impact of the adjustments on current health expenditure by provider, 2014

Provider	SHA codes	Million KZT			% of CHE	
		Original	Adjusted	Diff. (%)	Original	Adjusted
Hospitals	HP.1	391 614	415 141	6.0	31.9	32.5
Residential long-term care facilities	HP.2	260	3 511	1 251.3	0.0	0.3
Providers of ambulatory care	HP.3	375 390	416 444	10.9	30.6	32.6
Providers of ancillary services	HP.4	83 958	34 221	-59.2	6.8	2.7
Retailers and other providers of medical goods	HP.5	330 752	330 752	0.0	27.0	25.9
Providers of preventive care	HP.6	28 138	40 327	43.3	2.3	3.2
Providers of health care system administration and financing	HP.7	5 538	6 362	14.9	0.5	0.5
Rest of the economy	HP.8	5 265	4 040	-23.3	0.4	0.3
Rest of the world	HP.9	1 036	1 036	0.0	0.1	0.1
Providers unknown	HP.0 ¹	3 934	25 447	546.9	0.3	2.0
Current health expenditure (CHE)	HP.1-HP.9, HP.0	1 225 884	1 277 281	4.2	100.0	100.0

1. In the original NHA tables this is referred to as HP.11.

Source: Republican Centre for Healthcare Development, Kazakhstan (adjusted).

Table 6.3. Impact of the adjustments on current health expenditure by financing scheme, 2014

Financing scheme	SHA codes	Million KZT			% of CHE	
		Original	Adjusted	Diff. (%)	Original	Adjusted
Government schemes	HF.1.1	702 809	738 092	5.0	57.3	57.8
Central government schemes	HF.1.1.1	244 249	276 125	13.1	19.9	21.6
Local government schemes	HF.1.1.2	458 559	461 967	0.7	37.4	36.2
Voluntary health care payment schemes	HF.2	39 506	51 341	30.0	3.2	4.0
Household out-of-pocket payment	HF.3	481 578	484 587	0.6	39.3	37.9
Rest of the world financing schemes	HF.4	1 992	3 261	63.7	0.2	0.3
Current health expenditure (CHE)	HF.1.1-HF.4	1 225 884	1 277 281	4.2	100.0	100.0

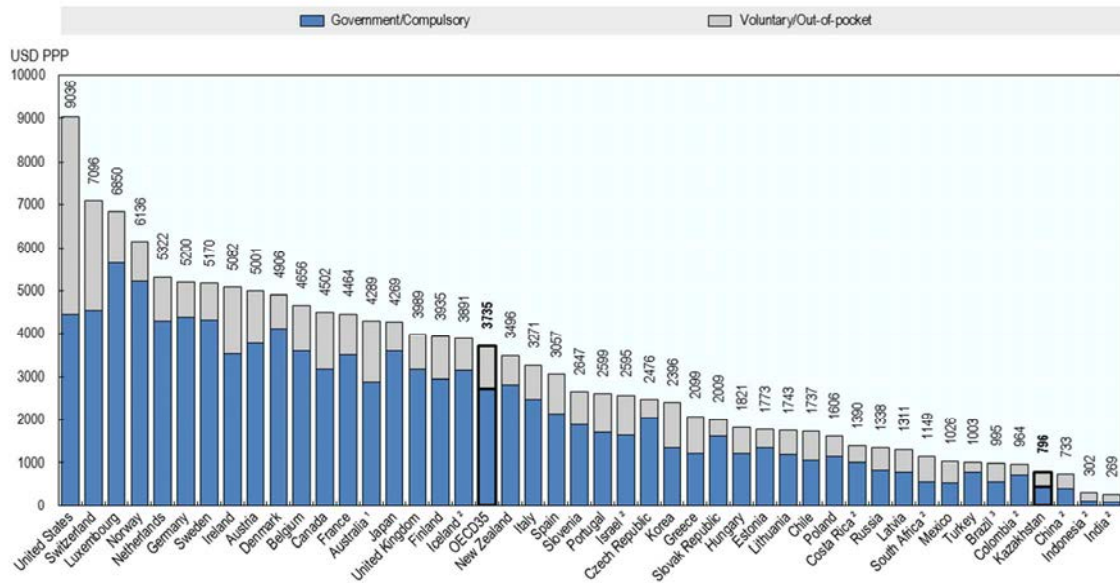
Source: Republican Centre for Healthcare Development, Kazakhstan (adjusted).

6.5. Comparing the adjusted NHA data³ with OECD countries

Using the adjusted NHA data, this section compares selected indicators of health expenditure and financing in Kazakhstan with the OECD and other countries. Data for the OECD countries is taken from OECD Health Statistics 2017. The comparison is based on the year 2014, as this is the latest year for which comprehensive health expenditure and financing data is available for both Kazakhstan and OECD countries.

Figure 6.1 compares per capita health expenditure levels between countries, with spending converted into a common currency (US dollar) and adjusted to take account of differences in the purchasing power of the national currencies (using economy-wide PPPs). In 2014, Kazakhstan spent the equivalent of USD 796 on health care goods and services for each resident. This level of health spending is about 21% of the OECD average (USD 3 735). Among OECD countries, the United States spent by far the most (USD 9 036), while Turkey (USD 1 003) had the lowest per capita health expenditure.

Figure 6.1. Health expenditure per capita, 2014



Note: Expenditure excludes investments, unless otherwise stated.

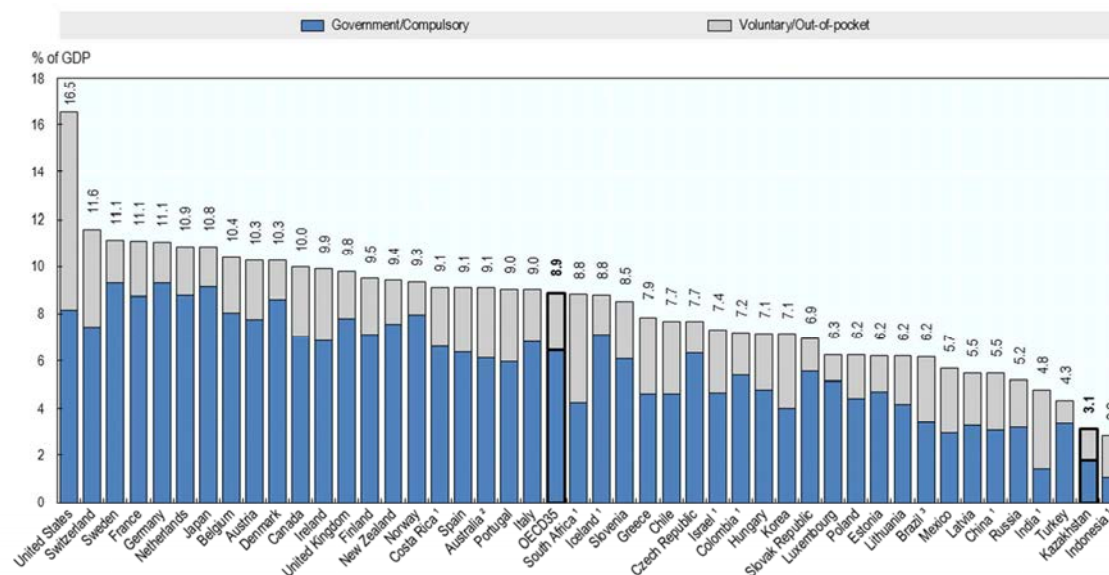
1. Australian expenditure estimates exclude all expenditure for residential aged care facilities in welfare (social) services.
2. Includes investments.
3. Data refer to 2013.

Source: OECD Health Expenditure and Financing, <http://stats.oecd.org/Index.aspx?DataSetCode=SHA>; WHO Global Expenditure Database, <http://apps.who.int/nha/database/Select/Indicators/en>; Republican Centre for Healthcare Development, Kazakhstan.

Figure 6.1 also shows the breakdown of per capita spending on health by financing between spending by government schemes and compulsory contributory health care financing schemes (HF.1) on the one hand and spending by voluntary health care payment schemes (HF.2) and household out-of-pocket payments (HF.3) on the other. Overall, the ranking according to per capita expenditure of the former remains comparable to that of total spending. In 2013, such “public” expenditure amounted to USD 460 per capita in Kazakhstan compared with USD 2 744 in the OECD on average.

In 2013, Kazakhstan spent 3.1% of GDP on health (Figure 6.2) – about one-third of the OECD average (8.9%). While the United States (16.5%) devoted the biggest share of GDP to health, Turkey reported the lowest share (4.3%). Among key partner economies, India and Indonesia spent 4.8% and 2.8%, respectively (both including investment).

Figure 6.2. Health expenditure as a share of GDP, 2014



Note: Expenditure excludes investments, unless otherwise stated.

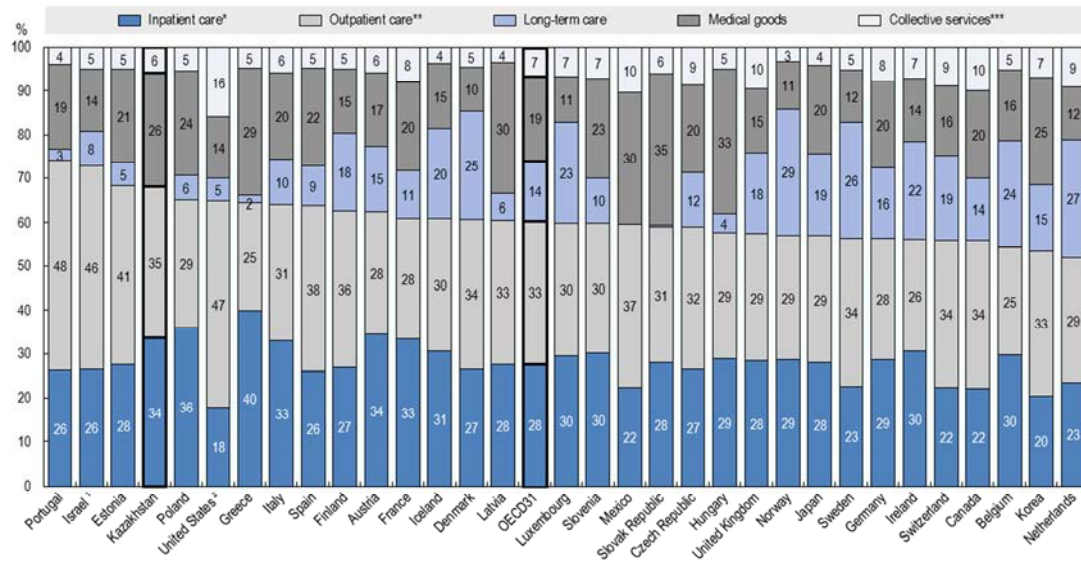
1. Includes investments.

2. Australian expenditure estimates exclude all expenditure for residential aged care facilities in welfare (social) services.

3. Data refer to 2013.

Source: OECD Health Expenditure and Financing, <http://stats.oecd.org/Index.aspx?DataSetCode=SHA>; WHO Global Expenditure Database, <http://apps.who.int/nha/database/Select/Indicators/en>; Republican Centre for Healthcare Development, Kazakhstan.

Across OECD countries, nearly two-thirds of all health expenditures were spent on inpatient care and outpatient care combined in 2014 (Figure 6.3). Kazakhstan allocates 69% of current health expenditure allocated to inpatient and outpatient services and is relatively high regarding inpatient care (34% of current health expenditure). Among OECD countries Greece, Poland and Austria spent higher shares on inpatient care in 2014. After inpatient and outpatient care, spending on medical goods is the third major category. OECD countries spent one-fifth of all health expenditure on non-durable and pharmaceuticals and therapeutic goods. In Kazakhstan, one quarter of current health expenditure was on medical goods, which is more than in most OECD countries. In fact, only Latvia, the Slovak Republic, Hungary, Greece and Mexico spent a higher share on medical goods. Kazakhstan reported virtually no spending on long-term care (health) in 2013 (0.02% of current health expenditure), whereas this category accounts for 12% of all health spending across the OECD. While spending on collective services is broadly in line with the OECD average, it is important to keep in mind that comparability of this category faces limitations as for Kazakhstan this includes a sizeable portion of unallocated (“unknown”) health spending (HC.0).

Figure 6.3. Current health expenditure by function of health care, 2014

Note: Countries are ranked by curative-rehabilitative care as a share of current expenditure on health.

* Refers to curative-rehabilitative care in inpatient and day care settings.

** Includes home care and ancillary services.

*** Includes other health services unknown.

1. Data refer to 2013.

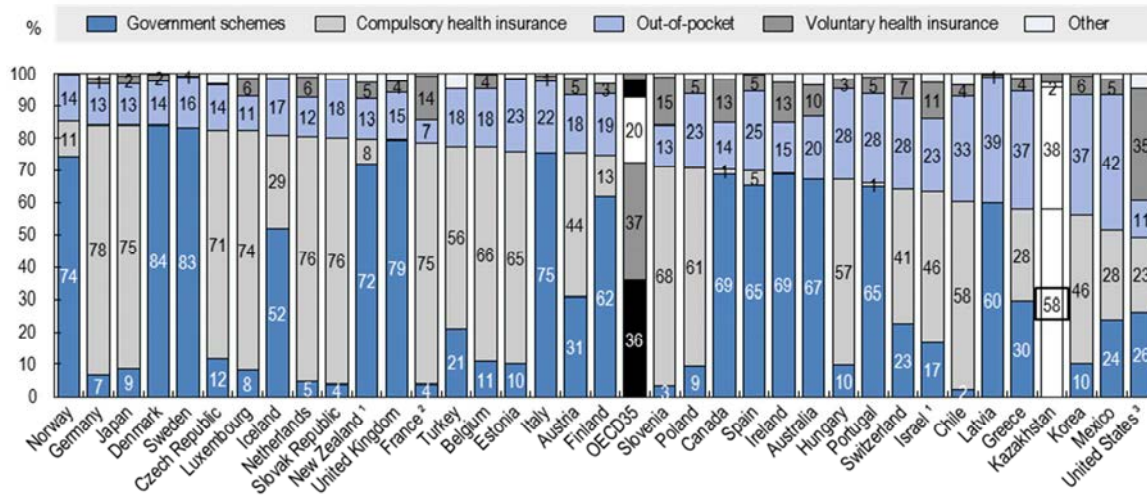
2. Inpatient services provided by independent billing physicians are included in outpatient care for the United States.

Source: OECD Health Expenditure and Financing, <http://stats.oecd.org/Index.aspx?DataSetCode=SHA>; WHO Global Expenditure Database, <http://apps.who.int/nha/database/Select/Indicators/en>; Republican Centre for Healthcare Development, Kazakhstan.

As Figure 6.4 shows, “government and compulsory contributory schemes” were the main source of health care financing in almost all OECD countries in 2014, with about three-quarters of health care expenditure financed through general government (corresponding to “HF.1.1 Government schemes”) and/or social health insurance (corresponding to “HF.1.2 Compulsory contributory health insurance schemes”). In Kazakhstan, the share of government spending on health (58%) was considerably below the OECD average. Only Korea, Mexico and the United States have lower shares of public financing. On the other hand, the share of health spending financed through households’ out-of-pocket payments is nearly twice as high in Kazakhstan (38%) as for the OECD on average (20%) and similar to that in Korea and Greece.

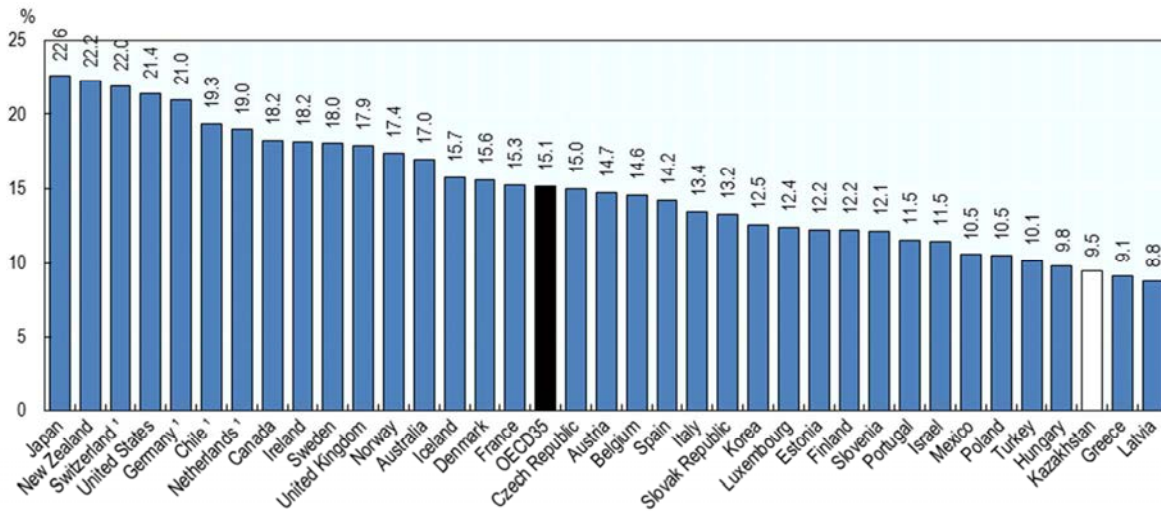
Within the public budget, health care is competing for resources with other sectors, including education, defence and housing. A number of factors including the type of health and long-term care system, the demographic composition of the population and relative budget priorities determine the size of the public health budget. Across the OECD, an average of 15% of total government expenditure was allocated to health care in 2014 (Figure 6.5). While Kazakhstan dedicated more than 5 percentage points less to health care, the share is comparable to that of other OECD countries such as Hungary, Greece and Latvia.

Figure 6.4. Expenditure on health by type of financing, 2014



- 1. Data refer to 2013.
 - 2. France does not include out-of-pocket payments for inpatient LTC thus resulting in an underestimation of the out-of-pocket share.
 - 3. Spending by private health insurance companies in the United States is reported under voluntary health insurance.
- Source: OECD Health Expenditure and Financing, <http://stats.oecd.org/Index.aspx?DataSetCode=SHA>; Republican Centre for Healthcare Development, Kazakhstan

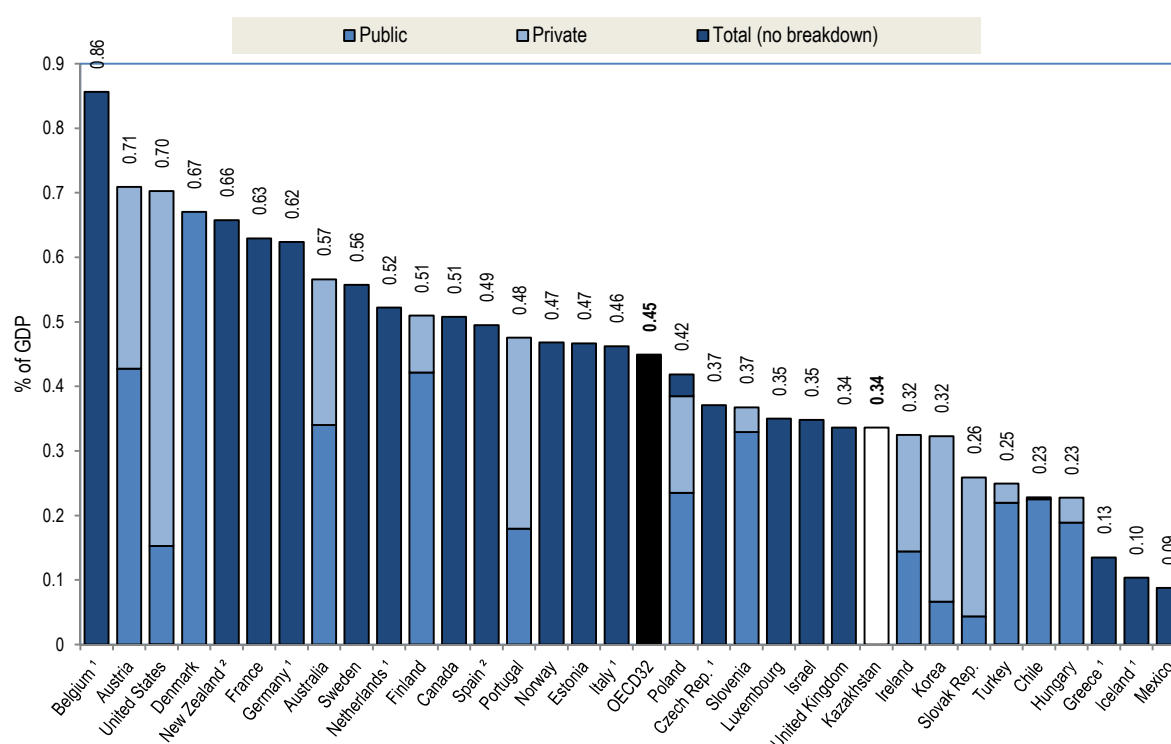
Figure 6.5. Health expenditure as a share of total government expenditure, 2014



Note: Relating spending from government and compulsory insurance to total government expenditure may lead to an overestimation in countries where compulsory insurance is provided by private insurers.
 1. Includes spending by private health insurers for compulsory insurance.
 Source: OECD Health Statistics 2017, <http://stats.oecd.org/Index.aspx?DataSetCode=SHA>; WHO Global Expenditure Database, <http://apps.who.int/nha/database/Select/Indicators/en>; Republican Centre for Healthcare Development, Kazakhstan; OECD National Accounts Database, http://stats.oecd.org/Index.aspx?DataSetCode=SNA_TABLE1; IMF World Economic Outlook Database.

As described above, capital formation of health care providers was already correctly reported outside of current health expenditure in the original NHA tables (category HC.RI.5). Furthermore, the spending items originally reported under HC.RI.9.3 and HC.4.9xHF.1.1.2 are excluded from current health expenditure since they appear to refer to gross fixed capital formation rather than the final consumption of health care goods and services. For Figure 6.6, these items are summed up and compared to gross fixed capital formation in the OECD countries. In 2013, Kazakhstan invested around 0.34% of GDP in terms of capital spending in the health sector. This is somewhat below the OECD average (0.45%) and comparable to capital spending in Luxembourg, Israel and the United Kingdom. It should be noted however that capital spending can vary from year to year and it is better to look at averages or trends over a period of time.

Figure 6.6. Gross fixed capital formation in the health care sector as a share of GDP, 2013



1. Refers to gross fixed capital formation in 86: Human health activities (ISIC Rev. 4).

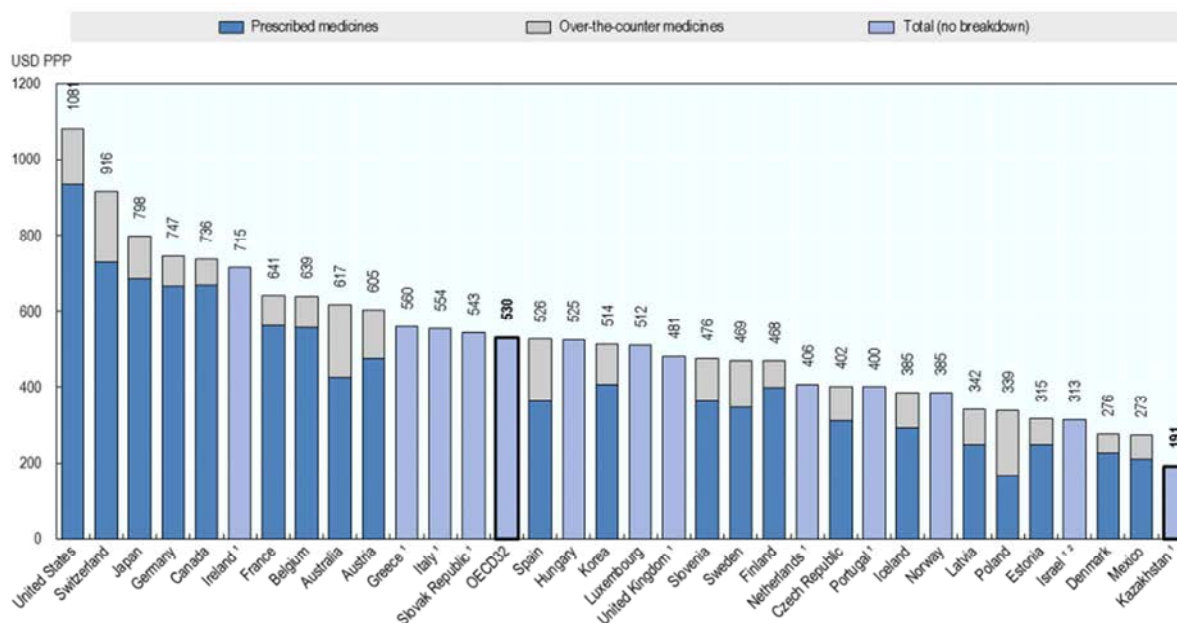
2. Refers to gross fixed capital formation in Q: Human health and social work activities (ISIC Rev. 4).

Source: OECD Health Expenditure and Financing, <http://stats.oecd.org/Index.aspx?DataSetCode=SHA>; OECD National Accounts Database, http://stats.oecd.org/Index.aspx?DataSetCode=SNA_TABLE8A; Republican Centre for Healthcare Development, Kazakhstan.

As indicated in Figure 6.3, pharmaceuticals (the main component of the category “medical goods”) represent the third largest category of health care expenditure after inpatient and outpatient care in both Kazakhstan and the OECD. Per capita spending on retail pharmaceuticals (expressed in USD PPP) amounted to USD 191 in Kazakhstan in 2014 (Figure 6.7). This is only about one-third of the OECD average (USD 530). At the other end

of the scale, the United States spent USD 1 081 on pharmaceuticals – around double the OECD average.

Figure 6.7. Expenditure on pharmaceuticals per capita, 2014



1. Includes medical non-durables.

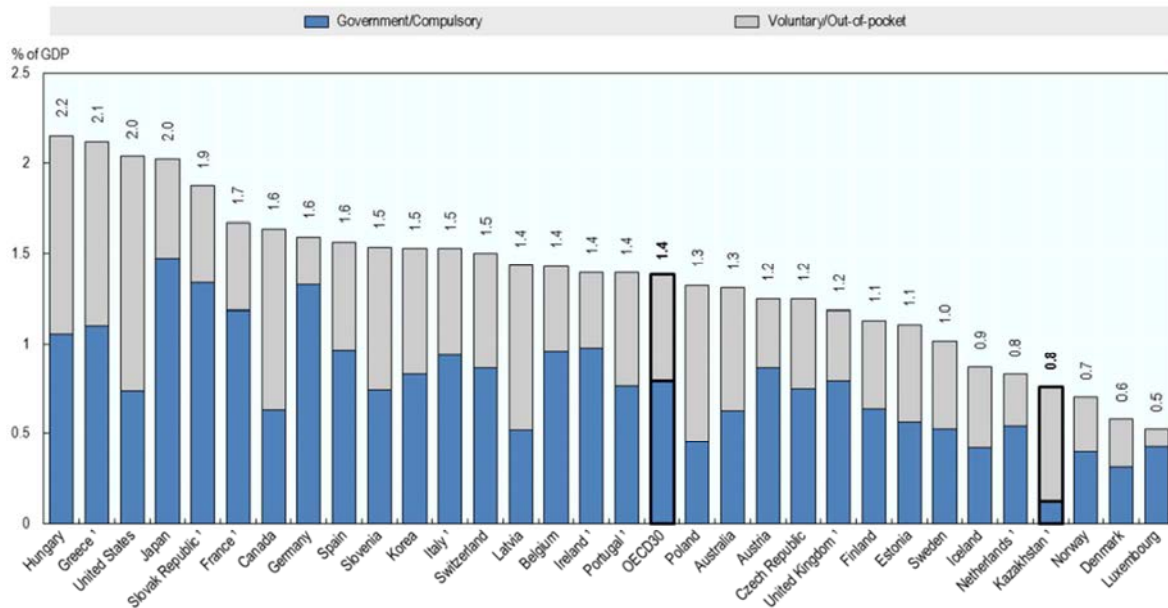
2. Data refer to 2013.

Source: OECD Health Expenditure and Financing, <http://stats.oecd.org/Index.aspx?DataSetCode=SHA>; Republican Centre for Healthcare Development, Kazakhstan.

Figure 6.8 shows expenditure on retail pharmaceuticals as a share of GDP and provides some information about the financing of pharmaceutical spending. In 2014, pharmaceutical spending in OECD countries ranged from 0.5% in Luxembourg to 2.2% in Hungary and represented on average 1.4% of GDP. Kazakhstan ranks at the lower end of this scale, with about 0.8% of GDP spent on pharmaceuticals. On average across the OECD, government and compulsory insurance spending on pharmaceuticals accounted for 0.8% of GDP which means that about 60% of all pharmaceutical spending was financed publicly. In Kazakhstan only about 16% of pharmaceutical expenditure was covered under government schemes in 2014, with the remaining 84% financed out-of-pocket.

Figure 6.9 illustrates that for all OECD countries “public” coverage of the costs of pharmaceuticals is not as developed as for other health services such as inpatient and outpatient care. On average across OECD countries, 79% of spending on health services was covered through government and compulsory financing schemes in 2014, compared with 57% for pharmaceuticals. This gap was considerably wider in Kazakhstan where 71% of spending on health services was covered through public schemes, in contrast to only 16% for pharmaceuticals.

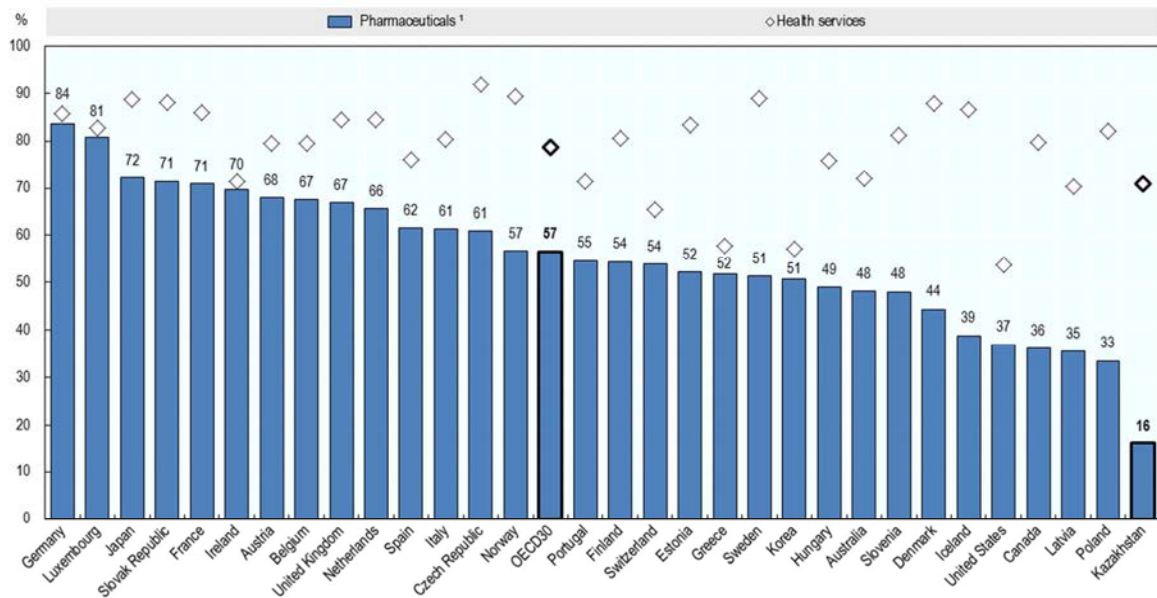
Figure 6.8. Expenditure on pharmaceuticals as a share of GDP, 2014



1. Includes medical non-durables.

Source: OECD Health Expenditure and Financing, <http://stats.oecd.org/Index.aspx?DataSetCode=SHA>; Republican Centre for Healthcare Development, Kazakhstan.

Figure 6.9. Government/compulsory insurance share of expenditure on health services and goods, 2014



1. Including medical non-durables.

Source: OECD Health Expenditure and Financing, <http://stats.oecd.org/Index.aspx?DataSetCode=SHA>; Republican Centre for Healthcare Development, Kazakhstan.

Notes

1. The distribution key for allocating insurance payments to HC.1.3.1, HC.1.3.2 and HC.1.3.3 as well as HP.3.1, HP.3.2 and HP.3.3 was derived from the information on expenditure by enterprises for outpatient care services contained in the Statistical Bulletin on service volumes from the Statistical Committee (these figures contain to a large part the insurance payments).
2. Shoranov et al. (2015), *National Health Accounts of the Republic of Kazakhstan. A report on health care expenditure for the year 2014*.
3. The adjusted NHA figures presented here are estimates based on the adjustments described in the first part of this chapter and do not take into account any changes based on recommendations in Chapters 4 and 5.

Chapter 7

Productivity and efficiency indicators

Improving efficiency, generally defined as the relationship between one or more inputs (or “factors of production”) and one or more “outputs” (e.g. number of surgeries) or “outcomes” (e.g. healthy life years) of the health system, is generally considered to be a key policy objective to reconcile rising demands for health care in the context of public budget constraints.

This chapter starts with a discussion of the concepts around efficiency and productivity with a review of the various approaches and challenges in identifying and measuring the various indicators. The current indicators published in the NHA of RK are reviewed before turning to an example of work being done across the OECD on measuring productivity, and how this might be used to improve productivity measurement in the Kazakh health sector.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

7.1. Introduction

An NHA framework, such as the System of Health Accounts 2011 (SHA 2011), produces a range of data and indicators that can ultimately be used for the analysis of the health care system and assist in the monitoring against certain policy objectives. Data arranged into standard health accounts tables can show where the money comes from, who manages it and what it is used for, which enhances the transparency and accountability of the health system. For countries that receive significant amounts of external resources, tracking these financial flows over time can capture trends associated or consistent with aid volatility as well as the potential implications for sustainability. Indicators for financial risk protection can be developed with data on the amounts of out-of-pocket spending and the levels of various forms of pre-paid resources. Indicators for equity in financing can be developed with data on the sources of funds, on expenditure (in combination with utilisation and income), and on types of revenue and beneficiaries.

Other health system objectives, however, require a combination of expenditure and non-expenditure data. For example, data on expenditure in combination with data on utilisation can be used to develop indicators of accessibility and equity. Expenditures on health and across the various sectors of health care can, under certain assumptions, be used in the calculation of indicators of efficiency in combination with data on outputs and outcomes. Some of these indicators can also be calculated without information on health expenditure.

7.2. Health sector productivity and efficiency

In the health system, measuring performance is complicated by the fact that what really matters to patients is not so much health care “outputs” (activities such as consultations with doctors or receiving some diagnostic or surgical procedures), but the “outcomes” of these activities (such as recovering from various diseases or injuries, or feeling better with less pain and discomfort after surgery). It is therefore important to distinguish between two broad categories of efficiency measures in the health sector: output efficiency (productivity¹) and outcome efficiency (or cost-effectiveness when linked to expenditure). Furthermore, two types of indicators can be used: the first type measures “technical efficiency”, that is producing the maximum (output or outcome) given a certain level of input or producing a given level while minimising the use of inputs; the second type measures “allocative efficiency”, which is the allocation of resources to achieve the best output or outcome with an input mix at the least cost. Finally, for a full assessment, indicators need to relate inputs and outputs/outcomes at three different levels:

1. system-wide level (macro-level)
2. sub-sector level (e.g., hospital, primary care, pharmaceutical sector)
3. disease-based level (e.g., cancer care, care for cardiovascular diseases, diabetes).

Each of these sheds light on different aspects of the health system, requiring data at varying levels of aggregation on the key dimensions (inputs, outputs and/or outcomes). The construction of meaningful efficiency indicators for all these levels is currently work in progress at the OECD and elsewhere. While the measurement of input indicators (financial and physical) is generally feasible, the identification of meaningful outputs and outcomes is more complicated. Nevertheless, this serves as a starting point for the RK to further develop their approach to measuring productivity/efficiency.

System-wide level measures

The main advantage of a system-wide level approach is that aggregate data are readily available on key indicators of inputs, either in financial terms (e.g. total health expenditure per capita) or in terms of labour/human resources (e.g. total number of doctors and nurses), while some broad indicators of population health status (e.g., life expectancy or, preferably, some measure of healthy life expectancy) can serve as health outcome measures.

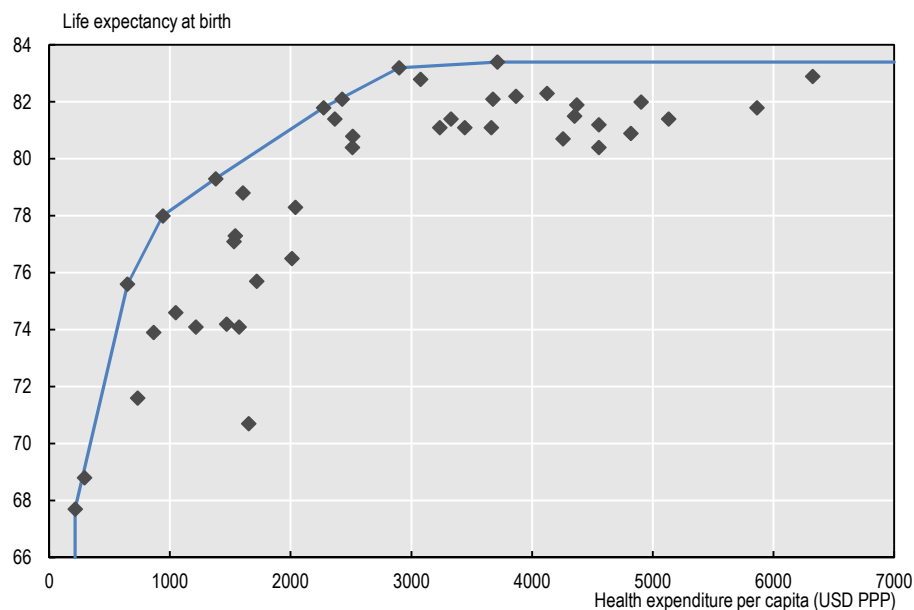
By linking the inputs with selected measures of health outcomes, a so-called "efficiency frontier" can be constructed, such that an "efficient" country can be identified as one that cannot improve the outcome without increasing the inputs (e.g., spending) or cannot reduce such inputs without compromising the outcome. The line connecting the countries in effect defines potential efficiency gains for less efficient countries based on the distance from the line (OECD, 2010).

Figure 7.1 provides an example of such an "efficiency frontier" using health expenditure as the input and life expectancy as the outcome. However, broad measures of population health status, such as life expectancy, are determined not only by health care factors (e.g. health spending or the number of doctors or nurses), but also by non-medical determinants (e.g., socio-economic determinants, education, environment and lifestyle factors such as smoking, alcohol intake and physical activity). Furthermore, since a good part of life expectancy is affected by these non-medical determinants, it is not very sensitive to short-term reductions or increases in inputs; a significant reduction in health spending apparently increases efficiency in the immediate term (i.e., countries get closer to the "frontier"), and vice versa for countries that decide to significantly increase health spending (appearing as less efficient by moving away from the "frontier").

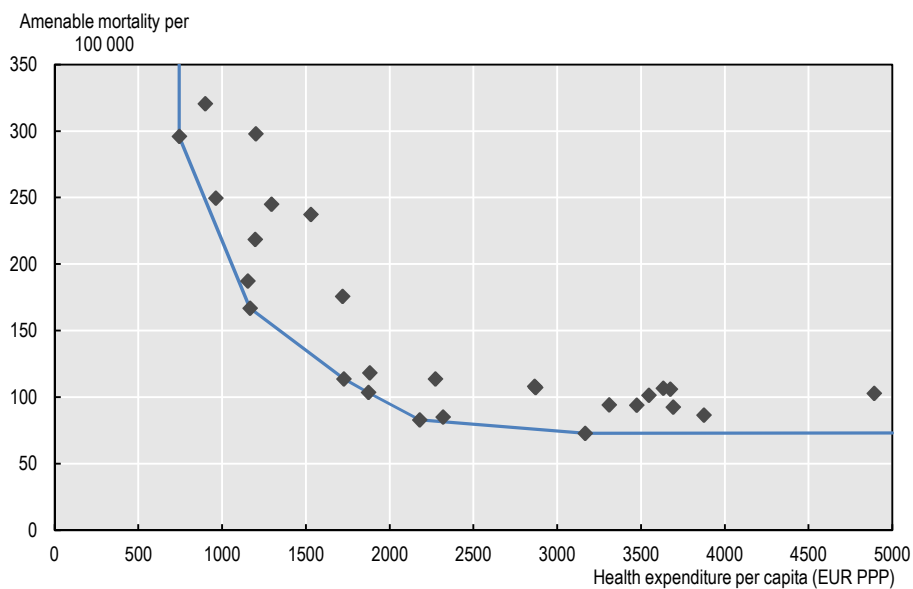
Hence, there is a need to control for all (or at least the main) non-health system determinants to assess the impact of health spending (or health human resources) on such broad measures of population health. This is challenging, notably because of data limitations. A further drawback is that the results of such aggregate analyses often do not provide much useful information to policymakers to identify the parts of the health system where most efficiency gains can then be generated and where priorities should be made.

One approach to overcome some of these disadvantages is to use indicators of health status that are more closely related to health care activities and which can be disaggregated into more "policy actionable" components. One such measure is "amenable mortality", defined as "premature deaths that should not occur in the presence of timely and effective health care" (Nolte and McKee, 2008) or as "conditions for which effective clinical interventions exist [that should prevent premature deaths]" (Tobias and Yeh, 2009). Figure 7.2 illustrates an "efficiency" frontier relating health spending with "amenable mortality".

While this measure has the advantage of focusing more specifically on health care activities and can be broken down by causes of death, it has been difficult to arrive at a general consensus on the selection of causes of deaths that are deemed to be "avoidable" versus those that are "unavoidable". Various researchers and organisations have different positions to what extent certain deaths are 'avoidable' (Nolte and McKee, 2011). Opinions vary, for example, for deaths due to different forms of cancer, respiratory diseases or diabetes.

Figure 7.1. Health expenditure per capita and life expectancy ("efficiency frontier"), 2014

Source: OECD Health Expenditure and Financing, <http://stats.oecd.org/Index.aspx?DataSetCode=SHA>; WHO Global Expenditure Database <http://apps.who.int/nha/database/Select/Indicators/en>; Republican Centre for Healthcare Development, Kazakhstan.

Figure 7.2. Health expenditure per capita and amenable mortality ("efficiency frontier"), 2014

Source: OECD Health Expenditure and Financing, <http://stats.oecd.org/Index.aspx?DataSetCode=SHA>; OECD Health Statistics, http://stats.oecd.org/Index.aspx?DataSetCode=HEALTH_STAT

Sub-sector level measures

A more concrete assessment of a country's health system performance requires an analysis of outputs/outcomes with regard to inputs at the sub-sector level of care provision. Primary care, hospitals and pharmaceuticals together account for three-quarters of health spending and are prime targets for generating efficiency gains. Many studies focus on the hospital sector since data tend to be more widely available. Governments also try to find efficiency gains in other areas of the health system such as administrative activity but beyond theoretical discussions no tangible output measure currently exists to appropriately measure these services. The sub-sector approach has the advantage of focusing on more disaggregated activities and can therefore lead more easily to sector-specific policy recommendations and actions. There is of course an overlap between sub-sectors and more efficient treatment in one sub-sector can have an impact on outcome measures in another (e.g. the appropriate use of antidiabetics can have an impact on outcomes for the treatment of diabetes measured at the primary care or hospital level).

Hospital sector

In the hospital sector, data on inputs and outputs/outcomes are more widely available than for other sub-sectors. On the input side this can be expenditure on hospital inpatient, outpatient and day cases, health care personnel in hospitals as well as physical resources, such as beds and technological equipment (e.g. MRI and CT scanners). For outputs, data on hospital discharges and bed days, procedures and surgeries also tend to be available in most countries. Quality and outcome measures can include fatality rates for conditions such as acute myocardial infarction (AMI) and stroke, and post-operative complications.

A key challenge in the analysis at the hospital level is to take into account differences in case-mix, across hospitals, across regions or across countries. Indeed, most studies of output efficiency in the hospital sector have relied solely on aggregate measures, such as the cost per treatments or discharges, or the number of discharges per hospital staff (or per hospital doctor). To address this shortcoming, the increasing use of activity-based payment systems for hospitals has created an impetus for more disaggregated comparisons both at the national and international level. These payment systems typically apply patient classification systems (such as Diagnostic-Related Groups) and clearly specify hospital treatments or cases, which significantly reduces the potential impact of differences in patient case-mix on standard efficiency indicators such as average length of stay (ALOS) or cost per treatment/discharge.

For a better international comparison of prices of hospital outputs, countries can leverage on the work done on hospital prices for a clearly defined set of standard hospital cases. Eurostat/OECD have designed a survey² as part of their programme to measure output-based prices in the hospital sector (Box 7.1).

Average length of stay (ALOS) is considered as an indicator of the relative resource use during a hospital admission, with a shorter length of stay associated with lower resource use - but as mentioned before using such an aggregate measure to compare hospital efficiency has some serious drawbacks. For all acute care, ALOS in Kazakhstan is above the OECD average (Figure 7.3). One conclusion might be post-acute care is not readily available to provide rehabilitative services for patients upon discharge leading to longer hospital stays than in those countries where well-developed ambulatory post-acute care is in place.

Box 7.1. Output-based methodology to collect hospital prices

There are three main problems in calculating international comparable hospital prices. The first is to identify comparable products across countries. This can be made complicated when products are not identical, there are differences in quality or because products simply do not exist in all countries. The second issue is to ensure representativeness of products: whatever price is compared, it has to be the price of a product that is widely and typically purchased in each country. The third issue arises when there is a product, but no meaningful market price for comparison. This last issue arises in the comparison of products that are typically produced and delivered outside markets, such as in health.

Previous calculations of the price of hospital services have often been based on prices paid for inputs (such as doctor or nurses wages), rather than the prices paid for hospital outputs. However, this assumes that health care productivity is uniform across countries such that they are all equal in their ability to convert inputs to outputs. The alternative is to adopt an output-based methodology, which requires:

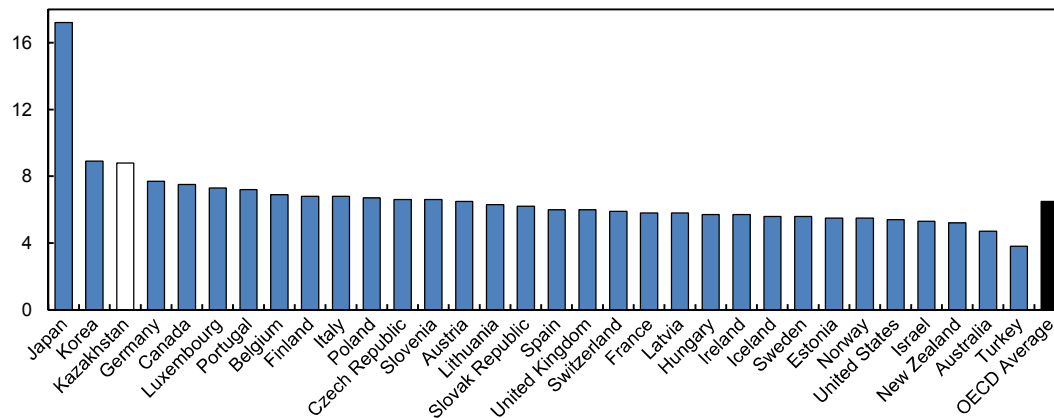
- The identification and definition of hospital outputs that can be measured across countries.
- The estimation of the “prices” for these hospital outputs, accounting for the fact that in many countries no easily observable market price will exist for hospital services.

The approach has been to use routinely collected administrative information through secondary databases to estimate “quasi-prices” for a representative set of health products. In so doing, it has the advantages of larger sample size, greater external data validity and limited costs of collecting data as compared to the alternative, a specific primary data collection effort that would have to be undertaken.

For practical reasons, the definition of output of health services is restricted to complete treatments delivered by a single provider, in this case, hospitals. A hospital output is called a case type and refers to a hospital service that is similar from a clinical perspective and in terms of its consumption of resources. Two categories of case types are distinguished: medical and surgical. The medical case types specified refer only to inpatient services whereas the surgical case types are further divided between those that require hospitalisation and those that can be performed on an outpatient (day care) basis. The inclusion of outpatient cases reflects the project’s intention to take into account changes in medical practice over time.

With the advent of output-based hospital funding, it has become feasible to define similar case types across countries. Numerous countries have adopted case-mix type systems to purchase hospital products, but these have developed on a national basis resulting in substantial differences between countries’ classification systems. So, whilst many countries have Diagnosis Related Groups (DRG)-type systems in place, the international comparability of product classification systems remains limited. A careful mapping exercise between the codes used in different national systems is required in order to get comparable information.

Source: Koechlin et al. (2014), *Comparing Hospital and Health Prices and Volumes Internationally*, <http://dx.doi.org/10.1787/5jxznwrj32mp-en>

Figure 7.3. Average length of stay (ALOS) in days (acute care), Kazakhstan and OECD - 2013

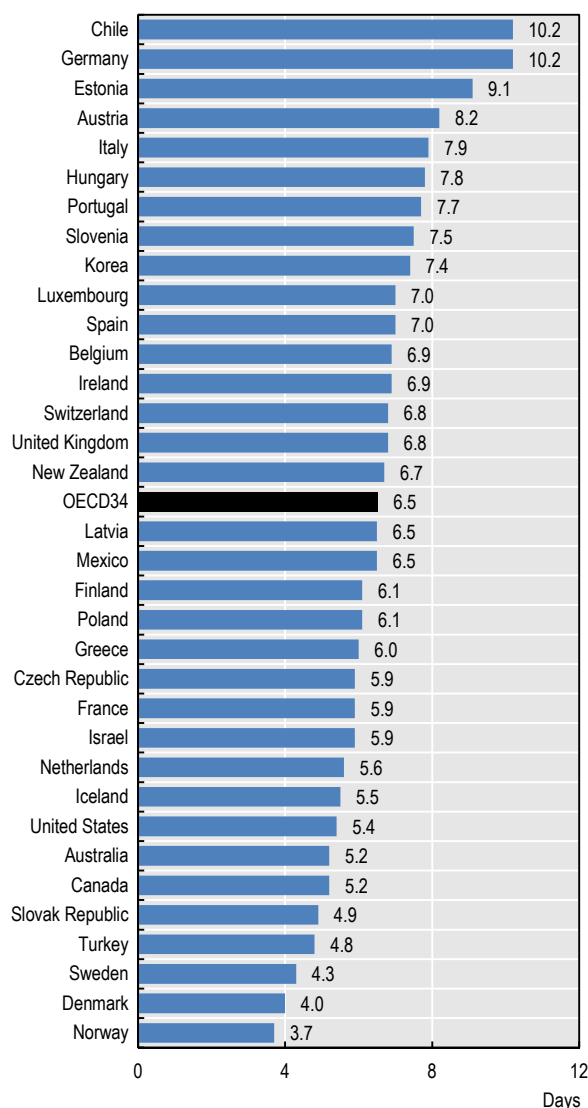
Source: Ministry of Health, Kazakhstan; OECD Health Statistics, http://stats.oecd.org/Index.aspx?DataSetCode=HEALTH_PROC.

Looking at changes over time in ALOS can indicate the generation of some efficiency gains. For example, ALOS in Kazakhstan has been decreasing: between 2005 and 2015, ALOS for all hospitals (including acute care hospitals) decreased by about 15%. While this is faster than for OECD countries (around 5%, the starting levels in most OECD countries were significantly lower, suggesting there is further room for improvements in technical efficiency in the Kazakhstan hospital sector.

There are some issues to consider when measuring and interpreting ALOS: (1) resource intensity: as the length of stay for admission is reduced, it is often the case that resource intensity per day increases and the marginal cost of additional days is reduced. In other words, a 50% reduction in length of stay does not necessarily result in a 50% reduction in cost, particularly where an expensive surgical procedure is involved; (2) casemix: ALOS can vary significantly for different conditions and by patient, given their age, sex and overall clinical condition on admission. To be able to compare ALOS across hospitals, regions and countries, it is important to assess and control for the differences in case mix. This can be done by either selecting specific conditions to reduce the case mix effect or by adjusting for case-mix through case mix standardisation (e.g. Relative Stay Index).

As an example for a focus on specific conditions Figure 7.4 displays the variation in OECD countries in ALOS for acute myocardial infarction (AMI). While the analysis of the difference is instructive, not all the observed variation can be related to differences in the efficient use of resources between countries. Difference in clinical guidelines in treating these conditions as well as differences in severity of case treated also play a role.

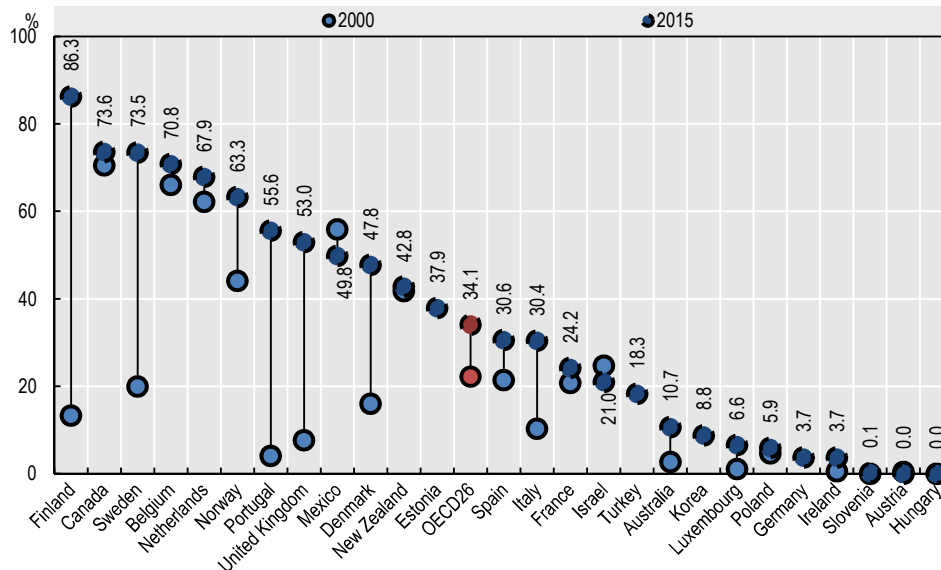
Finally, it is important to consider whether a reduction in the length of hospital stay impacts on the quality of care provided by the hospital, both in terms of clinical effectiveness and completeness of care. For example, there is a risk that any hospital cost reductions are partially offset through increases in out-of-hospital services. In addition, there may be an increased risk of patients needing to come back to hospital for further care if discharged too early. The measurement of unplanned readmission in tandem with ALOS is common practice in some countries.

Figure 7.4. Average length of stay for acute myocardial infarction (AMI), 2015 (or nearest year)

Source: OECD Health Statistics, http://stats.oecd.org/Index.aspx?DataSetCode=HEALTH_PROC

Another often-used measure of efficiency in the hospital sector is the share of surgeries conducted as day-case or outpatient procedures. This can be seen as an extension of the policy to shorten ALOS and reduce hospital resource use. Improvements in clinical practice, greater community care and utilisation of new technologies, procedures and care can now be employed to avoid a patient needing to stay overnight in hospital. As day-case or outpatient procedures are typically less costly than inpatient surgeries moving surgeries into these settings is more efficient in cases where this is clinically possible (e.g. cataract surgeries, tonsillectomies). Figure 7.5 displays the share of tonsillectomies that are carried out as ambulatory cases.

Figure 7.5. Share of tonsillectomy carried out as ambulatory cases



Source: OECD Health Statistics, http://stats.oecd.org/Index.aspx?DataSetCode=HEALTH_PROC

ALOS and the share of outpatient surgeries are used as indicators measuring output efficiency without taking into account differences in the quality of treatment. Adjusting these for outcome measures would be a desirable next step but such indicators are not widely available. Yet, recent work at OECD and elsewhere has contributed to progress in this area. Some outcome measures, such as 30-day mortality rates after admission for certain conditions are becoming increasingly comparable at an international level. While 30-day mortality after admission to hospital for AMI in Kazakhstan based on patient data is very close to the OECD average (9.5), data based on admission data show Kazakhstan performing much better than all OECD countries. This large gap between admission (same hospital) and patient (in hospital and out of hospital) suggests further validation of this data might be justified. Similar differences exist for 30-day mortality after admission for stroke.

Outcome measures can also take further indicators into account, such those linked to safety (inappropriately high health care associated infection rates, adverse events, etc.). Those parameters can signal the presence of poor clinical processes and as such also deserve attention (Gawande, 2009).

Primary care sector

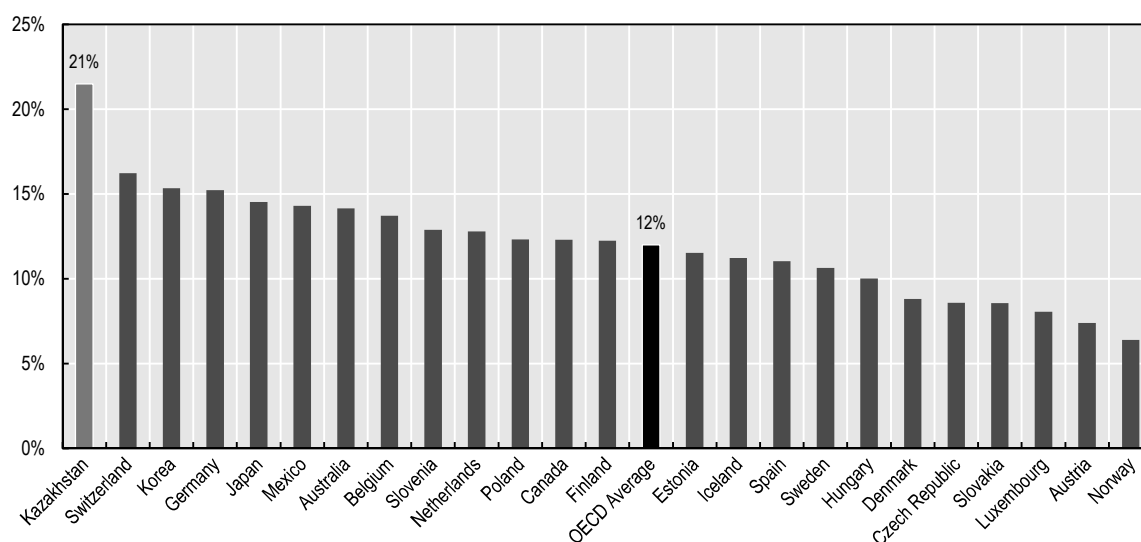
Primary care is an important cornerstone of all health systems defined as the “first level of contact for the population with the health care system, bringing health care as close as possible to where people live and work. It should address the main health problems in the community, providing preventive, curative and rehabilitative services” (WHO, 1978). While there is broad consensus about this general definition, there is less agreement when it comes to detailing the list of primary care services and distinguishing primary care providers from secondary and other non-primary care providers.

One of the challenges, from the input side, is to come up with an estimate of primary care expenditure applicable at the national and international level; the obvious starting point being an existing accounting framework such as SHA. A concise definition might not correspond to

existing categories or require a level of granularity of data that is unavailable in many countries, thus limiting the applicability of the definition and comparability of data. A balance needs to be found between a policy relevant and sound definition and the feasibility to report data consistent with this definition on a regular basis. As such, there is a need for flexibility with narrower and broader measures, depending on the extent to which countries can meet the data requirements.

Based on one such measure³, 21% of current health expenditure was spent on primary care in Kazakhstan in 2014. Compared with the 28 OECD countries for which data is available, around 12% on average is spent on primary care services, about half as much as Kazakhstan (Figure 7.6). The elevated primary care expenditure in Kazakhstan may partly reflect definitional and reporting differences.

Figure 7.6. Primary care as a share of current health expenditure, OECD countries and Kazakhstan, 2014 (or nearest year)

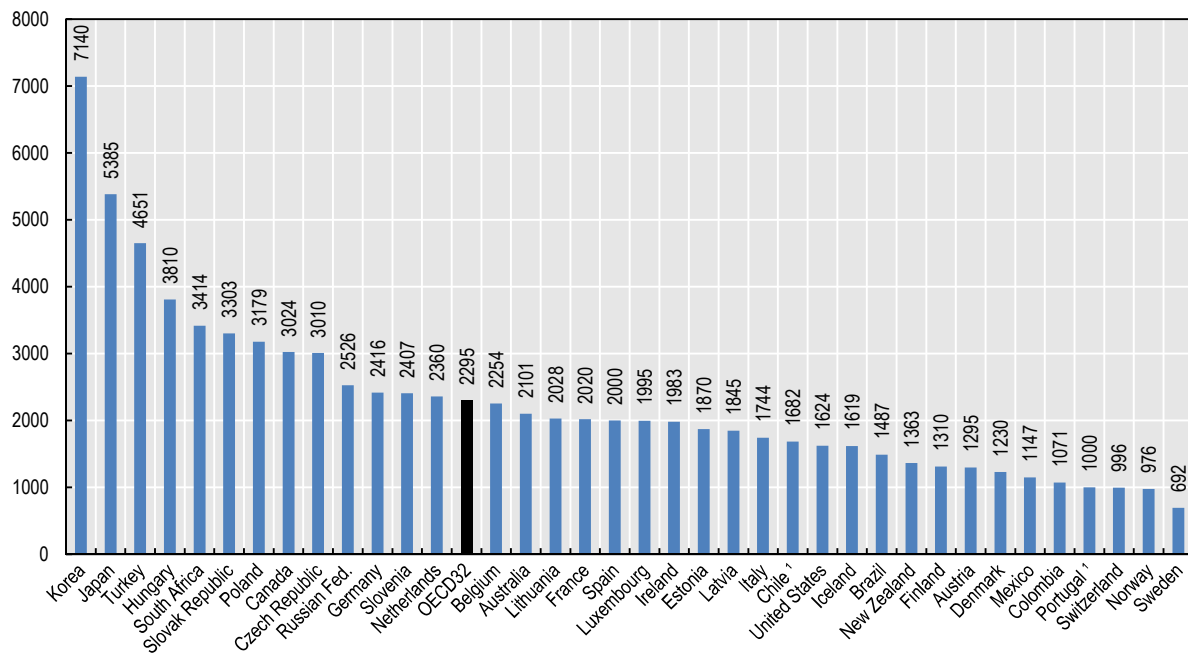


Source: OECD Health Expenditure and Financing, <http://stats.oecd.org/Index.aspx?DataSetCode=SHA>; Ministry of Healthcare, Kazakhstan.

Comparable data on other inputs, such as physical resources going into the provision of primary care are more readily available. This is at least the case of the number of GPs. With the number of consultations also a widely reported measure of the volume of primary care activity (output), relatively simple productivity measures of consultations per GP or per capita can be constructed (Figure 7.7).

Figure 7.7. Number of consultations per doctor, 2015

Annual consultations per doctor



Source: OECD Health Statistics, http://stats.oecd.org/Index.aspx?DataSetCode=HEALTH_PROC

Again, comparing such broad indicators can be instructive but comes with important shortcomings. For example, they do not take into account other staff such as nurses that might be involved in the provision of primary care, or the specific primary care organisation in a country. The length and nature of a consultation also needs to be considered which can affect quality of care and patient experience. For patients with chronic conditions, it is particularly important that they are treated according to clinical guidelines. In many OECD countries, primary care physicians can receive additional financial rewards to provide all recommended services, for example as part of a diabetes management programme. To what extent this “process quality” is provided as part of a consultation is important and should be measured.

A number of useful indicators exist to measure the quality of primary health care. The number of hospitalisations for Ambulatory Care Sensitive Conditions (ACSCs) is a powerful – if rather high level – indicator for this. ACSCs are conditions for which effective and accessible primary care can generally prevent the need for hospitalisation, or for which early intervention can reduce the risk of complication or prevent more severe disease (Agency for Healthcare Research and Quality, 2001). Diabetes, chronic obstructive pulmonary disease (COPD) and asthma⁴, angina, hypertension and congestive heart failure (CHF), bacterial pneumonia, dehydration, pediatric gastroenteritis and low birth weight are all ACSCs with an established evidence base that much of the treatment can be delivered by outpatient care at the primary or community care level. Treated early and appropriately, acute deterioration in people with these conditions and consequent hospital admissions could be avoided.

For example, asthma and COPD hospital admissions for adults in Kazakhstan are high compared with the average of OECD countries. In 2013, the rate of hospitalisations in Kazakhstan due to asthma or COPD, was more than 50% higher than the average for OECD countries and more than six times the rate in Japan. The same can be observed for admissions in hospitals due to diabetes. A similar measure is the number of emergency department visits, which can be high if primary care is not available or not readily accessible.

Other primary care outcome indicators currently being developed are patient-reported experience measures (PREMs) which include the concepts of communication, shared decision-making and use of a patient-centred approach to provision of care, by respecting for example patient preferences. They capture patient experience with care such as being listened to and having concerns addressed; having a say in decisions about care and having management of health problems coordinated around individual needs. Countries are at different stages in developing PREMs in primary care. Some international surveys (such as the Commonwealth Fund International Health Policy Survey) collect PREMs to measure quality and responsiveness to patient needs and expectations in primary care. These surveys include for example questions such as whether patients thought that doctors spent enough time with them during consultations and whether doctors provided them with easy-to-understand explanations.

Some work has been done to link inputs and outcomes in the primary care sector in OECD countries. At the European level, the Primary Healthcare Activity Monitor for Europe (PHAMEU⁵) project relied on Data Envelopment Analysis (DEA) to measure the relative efficiency of primary care across more than 30 European countries (Kringos et al., 2013). A country was defined as being efficient in delivering primary care if it used an optimal combination of structure (measured in terms of governance, economic conditions and workforce) and organisation of processes (measured in terms of comprehensiveness, access, continuity and coordination of care) to produce a given level of outcomes (measured in terms of quality). But the reliability of these calculated results depends heavily on the quality of the underlying data and the weights given to different indicators.

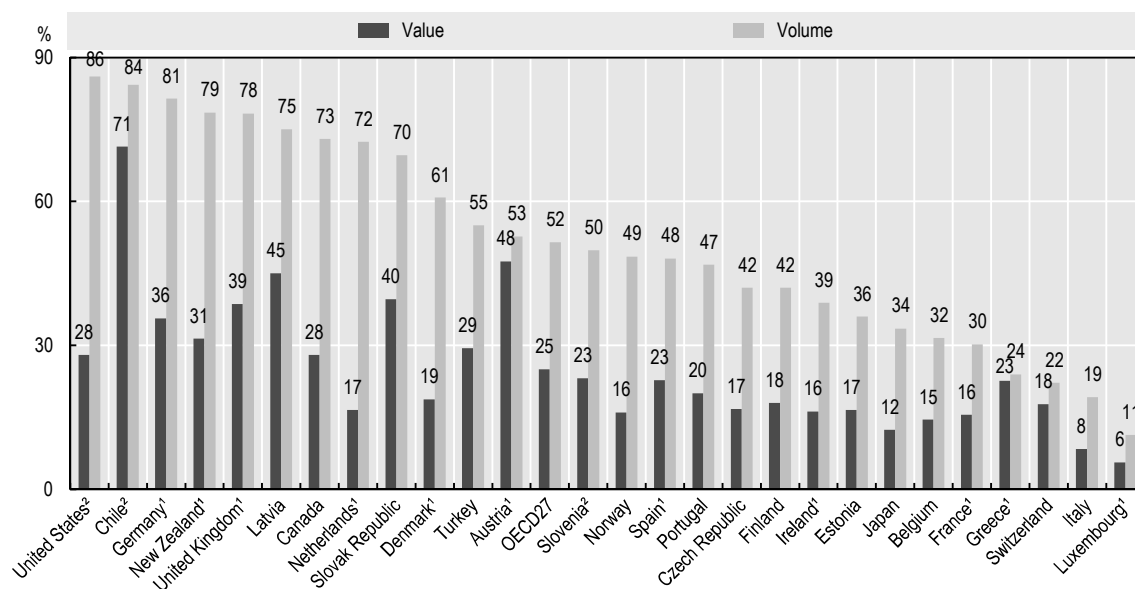
Pharmaceutical sector

The role the pharmaceutical sector can play in realising overall efficiency gains in the health sector is not always clear. Cuts in pharmaceutical spending or reduction in consumption may lead to increased utilisation of other health care services, which may in fact increase health care spending and reduce overall efficiency. On the other hand, medicines can cure diseases, improve or maintain health, and avoid worsening of existing conditions. This may result in fewer visits to emergency departments, fewer surgeries, or a delay in the need for long term care. The net effect is reduced overall costs and improved health outcomes. However, measuring health improvements that can be unambiguously attributable to pharmaceutical expenditure and/or to consumption is difficult. Some indicators of efficiency in the primary and secondary sector might be heavily influenced by the use of pharmaceuticals (e.g., the proper management of chronic diseases like asthma, diabetes and hypertension). Establishing causal relationships is complex because the pharmaceutical sector is only one of many factors that contribute to health outcomes.

While data on pharmaceutical expenditure (financial input) and the volume of consumption of specific pharmaceuticals (output) are frequently available, outcome measures attributable to pharmaceuticals are generally lacking. An alternative (or complementary) approach is to measure inefficiencies in the way pharmaceuticals are used and the costs related to this.

There are two main ways of reducing pharmaceutical costs with no change to outputs/outcomes: first by increasing the share of the generic market and second by paying lower prices for pharmaceuticals. Substituting expensive originator drugs with cheaper and therapeutically equivalent generics can offer significant cost savings with no adverse health effects. In the United States, for instance, where the generic market is very dynamic, the price of a generic drug is on average 80 to 85% lower than that of the originator product. The existence of generics markets provides the opportunity of increasing efficiency in pharmaceutical spending. In all European countries, the share of the generic market has increased in recent years, although there remain large variations across countries in the share of generics in volume and value. Figure 7.8 provides an overview of the penetration of generics in the pharmaceutical market in OECD countries.

Figure 7.8. Share of generics in the total pharmaceutical market



Note: 1. Reimbursed pharmaceutical market. 2. Community pharmacy market.

Source: OECD Health Statistics, http://stats.oecd.org/Index.aspx?DataSetCode=HEALTH_PHMC

Another mechanism to reduce expenditure on pharmaceuticals without compromising patient health outcomes is to reduce prices paid for medicines. Undertaking international comparisons of pharmaceutical prices allows comparisons to be made of prescription prices assessing the extent of pricing variation across countries as well as across time. This indicator would involve defining what a basket would look like and how to define the quantity and price.

Inappropriate use of medicines is another significant source of inefficiencies in health systems. Health outcomes can also be maximised by improving the way medicines are consumed. Desired treatment outcomes are not achieved when medicines are over-used, under-used or used inappropriately. When medicines are over-used, they generate costs above those required to achieve the desired treatment outcomes. In addition, they can lead to increased costs due to adverse effects (Foster et al., 2016). Similarly, when medicines are under-used (not prescribed where recommended or prescribed at too-low dosages) or adherence is poor (patients do not use medication as recommended), desired treatment outcomes are less likely to be achieved. Non adherence can result in costly complications that

are often more expensive than the medicines and worsen health outcomes. Poor adherence often leads to preventable worsening of disease, posing serious and unnecessary health risks, particularly for patients with chronic illnesses. This leads to increased hospitalisation and death and increased costs. Treatment failures may lead to repeated or prolonged treatment episodes (De Geest and Sabaté, 2003).

Two indicators of overuse are already routinely reported by OECD countries: “Antibiotic consumption” and “Inappropriate prescribing of benzodiazepines among elderly people”. The proposed indicator to measure underuse of medications is persistent pharmaceutical utilisation rates for two chronic conditions: hypertension and diabetes. However, there is no routine reporting of adherence or persistence measures in most countries.

The last factor with the potential of improving health outcomes without increasing costs is the use of e-prescriptions. Electronic prescribing (or e-prescribing) is the electronic transmission of prescriptions or prescription-related information between a prescriber and a dispenser. E-prescribing improves the efficiency of the prescribing process and has the potential to save money. An indicator related to the percentage of primary care physicians able to electronically transfer prescriptions to a pharmacy is currently available for only eleven OECD countries (Osborn et al., 2015).

Disease-based level measures

If health system inputs, either financial or physical, are to be linked to output and outcome measures then, on the face of it, this is best done at the level of disease, cutting across the whole health system comprising different sub-sectors. Recent OECD studies in areas such as cancer, cardio-vascular disease and diabetes have attempted to examine the links between inputs, outputs and outcomes (OECD, 2013; OECD, 2015). However, there are significant limitations as it stands with disease-based analysis of efficiency. First, health outcomes may be available for some diseases (notably cancer, because of the existence of cancer registries in most countries that are collecting data on survival rate), but reliable data are lacking for most diseases or treatments. Second, information on complete inputs (notably full treatment costs) by disease is also often lacking; few countries compile health expenditure by disease accounts (Box 7.2). In the context of measuring efficiency, current studies provide overall total costs (cost-per-capita) associated with a given disease, or a cost per contact (e.g. per hospital visit) as opposed to the cost-per-case of the disease which is ultimately needed to be able to link to disease-based outcomes.

Alternative non-financial input indicators for a disease-based level analysis could be the number and density of specialist health care professionals, such as the number of physicians in different medical and surgical domains, other health care professionals (e.g. midwives and physiotherapists). However, data tends to be primarily restricted to broad categories of medical doctors, rather than taking into account other health care professionals also involved in the treatment process for certain diseases, beyond overall numbers of nurses and other care workers.

Further input indicators to investigate may be the availability and use of a selected set of diagnostic and therapeutic technologies used to diagnose or treat specific diseases. While many of these technologies are used to diagnose a wide range of conditions (e.g. CT, MRI and PET scanners), others are used more specifically to diagnose or treat particular diseases such as cancer⁶.

The most readily available output measures for disease-based analysis are the number of patients admitted and discharged from hospitals for specific diseases. These data are available

for inpatient and day cases in nearly all European countries. As in the case of expenditures, it is more of a challenge to measure precisely the use of other health care services (e.g. outpatient consultations) or pharmaceuticals directly attributable to specific diseases.

Outcome measures vary depending on the diseases. For life-threatening diseases such as cancer, acute myocardial infarction (AMI) and stroke, survival or mortality-based indicators are obviously very relevant, but can also be complemented with health-related quality of life indicators, collected for instance through patient-reported outcome measures (PROMs).

Box 7.2. Expenditure by disease accounts

A breakdown of health spending by diseases reflects differences in disease prevalence and spending priorities across countries. On its own this doesn't provide any information about the effectiveness of different interventions or which programmes can be used to reduce the prevalence or treat diseases, or indicate whether the current allocation is optimal. Similarly, the expenditure allocated to any specific disease or group of diseases cannot on its own indicate the possible cost savings to be made by implementing, for example, particular prevention campaigns. Conversion of the opportunity cost—or the benefits forgone—of resources being devoted to disease treatment into expenditure savings involves a number of additional considerations (AIHW: Mathers et al., 1998).

Disease accounts can be integrated in NHA in a way that, for each provider current health expenditure is allocated to the specific diseases reflecting the cost of their treatment by the individual provider. Such an approach in which costs for each disease and each provider are placed in the context of total health expenditure yields consistency, good coverage, and avoids any double-counting of costs resulting in disease costs summing up to exceed total spending. This can be informative over time to understand which diseases are driving health expenditure growth. However, a general approach to resource allocation is probably not as sensitive or accurate as a detailed analysis of actual costs incurred by patients with that disease (Rosen et al., 2013).

The most commonly applied approach allocates expenditures to particular diseases based on contacts or encounters with the health care system. While expenditures can be linked to output measures at a provider level, they are not readily compared to health outcomes (such as mortality and quality of life), which are typically measured at the person-level. For example, hospital expenditure data, based on a discharge database records, can distribute hospital spending, but it may not be possible to link multiple hospital stays (within or across hospitals) to one individual and, it is even more unlikely that the hospital discharge data can be linked to, for example, physician visit data. Therefore, while it may be possible to derive an average cost (expenditure) for a hospital encounter, physician visit, etc., even broken down by age group and gender, and other socioeconomic characteristics, it is difficult to estimate the cost-per-case of a particular disease. Another barrier is allocating spending where there is a lack of data giving patient-level diagnosis information, which is often the case for visits to general practitioners or pharmaceutical spending. In the latter case, pharmaceutical spending can be linked to the active ingredient, but modelling or mapping is required to link this to single or multiple conditions.

Source: OECD (2016), *Estimating expenditure by disease, age and gender*, <http://www.oecd.org/els/health-systems/estimating-expenditure-by-disease-age-and-gender.htm>

For cancer, survival estimates are typically used as outcome measures. This takes into account both the impact of early detection of cancer and the effectiveness of treatment. Survival data are typically available for four types of cancers (breast, cervical, lung and acute lymphoblastic leukaemia in children). In addition, the OECD is currently evaluating ways to collect patient-reported outcome measures (PROMs) related to cancer care, in an internationally comparable manner.

For cardiovascular diseases, case-fatality rates following hospital admissions for acute myocardial infarction (AMI) and stroke can be used as outcome measures reflecting the processes of care, such as timely transport of patients and effective medical interventions.

Other disease-specific data can be used as outcome measures for analysing the effectiveness of health systems in treating or managing other conditions. Avoidable hospital

admission rates are collected for widely prevalent chronic conditions including asthma, chronic obstructive pulmonary disease (COPD), congestive heart failure (CHF) and diabetes. Such potentially avoidable hospital admissions can be interpreted as signals of shortcomings in access to high-quality primary care for people having these chronic diseases.

7.3. Current productivity measurement in the NHA of RK

The National Health Accounts (NHA) for Republic of Kazakhstan (RK) (Shoranov et al., 2014; 2015) incorporates a section on productivity measures at the sub-sector level. This represents a pilot initiative from the Republican Center for Healthcare Development (RCHD) rather than a request from the Ministry of Health (MOH).

For the published indicators, the following input data are used: inpatient care expenditure, the number of physicians and compensation payments for employees. Output data refer to: the number of discharges of patients from hospitals, the number of outpatient visits, and the number of operations at inpatient and outpatient facilities.

The reported measures of average/total productivity give the total output related to the total amount of any given input (Table 7.1). An example is given comparing hospitals such that a hospital in one oblast of RK that produces a certain number of patient discharges for a cost of KZT 1 million is more “efficient” than one that produces the same number of discharges, but for a cost of KZT 2 million.

When considering sub-sector measures it should be taken into account that these indicators do not show the full integration of health care services delivery or indeed any changes in the quality of medical care. Also to fully analyse the productivity and compare it between regions, adjustments should be made to account for the different complexities or severities and resulting treatment of diseases and conditions in each separate region and year (e.g. the most complex cases may be treated only in Astana or Almaty city). This is currently not the case.

Table 7.1. Examples of productivity measures in NHA of RK, 2014

Measure	Examples
Average productivity	Number of hospital discharges per million KZT
	Number of inpatient surgeries per million KZT
	Number of outpatient visits per million KZT
	Number of outpatient surgeries per million KZT
	Annual number of discharged patients from hospitals per FTE of physicians and/or nurses
	Annual number of discharged patients from hospitals per million KZT spent on labour inputs and/or on pharmaceuticals

Source: Shoranov et al. (2015), *National Health Accounts of the Republic of Kazakhstan. A report on health care expenditure for the year 2014*.

Table 7.2, which is extracted from the NHA 2014 report (Shoranov et al., 2015.), shows the trend in productivity indicators in the health system in RK. For example, based on the number of discharges or inpatient days through the UNHS⁷ per million KZT (in 2010 prices), it might be concluded that the average productivity of hospitals has declined. By contrast, the number of surgical operations per million KZT increased over the same period. Similar to the pattern observed in the hospitals, “productivity” in the outpatient activities also declined. For example, the average number of outpatient visits per KZT 1 million fell by almost 40% between 2011 and 2014.

Table 7.2. Average productivity in Kazakhstan health care system for 2011-2014 (in 2010 prices)

Indicators in 2010 prices	2011	2012	2013	2014
Number of hospital discharges through UNHS per KZT 1 million	14.3	11.5	10.9	9.4
Number of equivalent inpatient days through UNHS per KZT 1 million	133.2	101.4	93.8	78.6
Number of surgical operations in hospitals through UNHS per KZT 1 million	3.5	3.6	3.5	3.7
Number of outpatient visits per KZT 1 million	476.3	377.6	349.4	296.4

Source: Shoranov et al. (2015), *National Health Accounts of the Republic of Kazakhstan. A report on health care expenditure for the year 2014*.

Although such a productivity analysis can give an indication about changes in the performance of different sectors or regions within a health systems is has very important caveats as it does neither adjust for changes in the severity of cases nor the quality of the services provided. It is also sensitive to the price information used to deflate the expenditures from one year to the next.

The NHA report itself points out some of the shortcomings in a face-value analysis of such trends. For example, from 2012, a DRG-based system of inpatient care payments was introduced. While the level of funding expanded, the volume of service activity remained more or less at the same level and the number of bed-days per capita declined relatively (i.e. in line with actual costs). Thus, the negative trend in the number of discharges from hospitals in relation to spending is associated more with a change in the system and improved payment mechanisms rather than any change in the production process. In addition, increasing unit costs (discharge and bed-days) can indicate that the level or intensity of care is higher (e.g. on average, the inpatient level treats more severe cases).

Although the challenges and shortcomings in a productivity analysis of the kind described above has been recognised by the authors of the report they conclude that the use of productivity indicators is nevertheless informative and meaningful in the context of the trends of demographic and epidemiological factors, as well as the changes in health policy⁸ and the RK would like to better align their work in this field more with what is done at the OECD.

7.4 Public service productivity measurement in the United Kingdom

The Office for National Statistics (ONS)⁹ in the United Kingdom has made progress in the measurement of productivity in public service sectors such as education and health. Representatives from the Italian, Swedish and Japanese governments have also shown interest in the methods used to measure productivity in the UK, with workshops for policy makers, national statisticians and academics run nationally and internationally. The approach used combines a number of the input and output measures discussed in the previous sections at the various sub-sectors of the healthcare system in a robust and detailed statistical framework, while taking account of changes in quality (ONS, 2013). The result is an overall measure of health sector productivity which is revised and published on an annual basis, currently covering the period 1995-2014 (ONS, 2017). The general methodology could be used as a starting point for Kazakhstan to develop its health sector productivity measures beyond the current set of

indicators. The complexity of the methodology is dependent on both the requirements (e.g. productivity comparisons at the regional level) and the data availability.

In its simplest form total inputs are linked to outputs. The ONS calculate the volume of inputs using data of health expenditures and direct measures of healthcare inputs. Currently, this is broken down by three main elements; Labour: the number and average salaries of a range of health care professionals; Goods and services: expenditure information on various services and pharmaceuticals; Capital consumption: estimates of the capital stock used up each year. Volume estimates for each component are estimated and aggregated together using expenditure weights from the UK National Accounts (for labour, net procurement and capital consumption)¹⁰ to create a UK level chain-linked Laspeyres volume index of healthcare inputs:

$$N_t = N_{t-1} \cdot \left(\sum_i \frac{(n_{i,t} - n_{i,t-1}) \cdot Ex_{i,t-1}}{(n_{i,t-1}) \cdot \sum_i Ex_{i,t-1}} + 1 \right)$$

Where:

- $n_{i,t}$ is an individual-level volume index of healthcare input i at time t
- $Ex_{i,t}$ is the level of current price expenditure of input i at time t
- N_t is the chain-linked aggregate Laspeyres volume index of healthcare inputs at time t , ($N_0=100$).

ONS uses an aggregated quality-adjusted measure of volumes of health care services as a measure of *output* of the sector. In doing so, unadjusted volume data are gathered from four sectors (Table 7.3), three of which are relatively closely aligned to the sectors discussed in Section 7.2, namely the Hospital and Community Health Care (hospital sector), Family Health Services (primary care) and Prescription Drugs (pharmaceuticals). The final sector, Non-NHS Provision, relates to other health services delivered by non-public bodies. The data on each sector varies as to granularity with inpatient admissions, procedures and other hospital activity the most detailed. Price and volume prescription data is also available at a high level of detail. Data are more aggregated for primary care services such as GP and dental consultations (number of consultations and total expenditures) as well as for externally provided services. One additional consideration is that the United Kingdom comprises four separate national health services (England, Wales, Scotland and Northern Ireland) with different reporting systems and levels of information, requiring assumptions to be used to complete data gaps as well as the overall weighting in the final estimates. The calculation of the volume of quality adjusted activities is therefore as follows:

$$v_{z,t} = \sum_j \sum_k (a_{j,k,t} - a_{j,k,t-1}) \cdot q_{j,k,t,t-1} \cdot u_{j,k,t-1}$$

Where:

- $v_{z,t}$ is a volume measure of quality-adjusted output at time t
- $a_{j,k,t}$ is the number of activity k in sector j at time t
- $u_{j,k,t}$ is the unit cost of activity k in sector j at time t
- $q_{j,k,t,t-1}$ is the change in level of quality between $t-1$ and t for activity k in sector j .

ONS employs five measures of quality covering a number of output activities in two of the sectors (the hospital and primary healthcare sectors) to capture the extent to which “the service (a) succeeds in delivering intended outcomes and (b) is responsive to users’ needs” (Table 7.2). Estimates of health gain, short-term survival and waiting times come from patient-level records and are applied to in-patient and day-case activities in the Hospital and Community Health Care (HCHS) sector. Further information from the National Patient Survey which covers aspects of access, safety, choice, relationship and cleanliness are combined into a measure for each service area of HCHS as well as for GP consultations under the Family Health Services (FHS) sector. Finally, an adjustment based on Primary Health Outcomes regarding the performance of GPs is also applied to Primary Care under FHS. If data are unavailable for all years, a no change in quality is assumed.

Table 7.3. Sectors for healthcare quantities with associated quality measures for UK output estimates

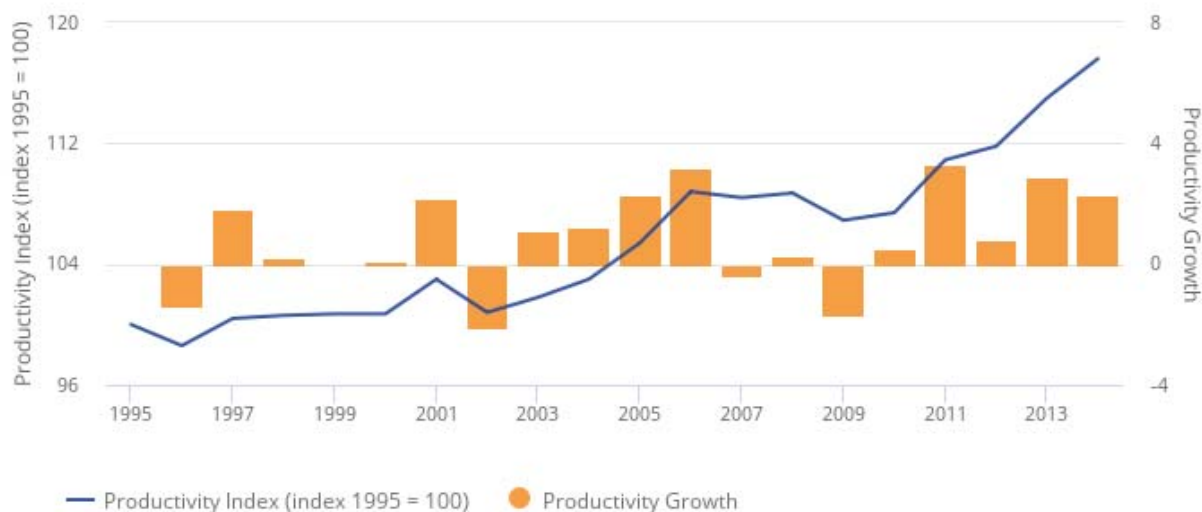
SECTOR \ QUALITY MEASURE	Health gain	Short term survival	Waiting times	National Patient Survey	Primary care outcomes
Hospital and community health care					
• Day cases	Y	Y	Y	Y	
• Elective inpatients	Y	Y	Y	Y	
• Non-elective inpatients	Y	Y		Y	
• Outpatients					Y
• Emergency					Y
• Mental health					Y
• Other					
Family health services					
• GP consultations				Y	Y
• Ophthalmic serv.					
• Dental serv.					
• Other					
Prescription drugs					
Non-NHS Provision					

Source: ONS (2017), *Public service productivity estimates: healthcare, 2014*, <https://www.ons.gov.uk/releases/publicserviceproductivityestimateshealthcare2014>

The final result is an aggregate chain-linked measure of quality adjusted healthcare output in the United Kingdom, which can be compared with the healthcare inputs volume index to come up with a measure of the productivity in the UK healthcare sector as a whole (Figure 7.9). The methodology behind the productivity estimates is under constant review and

refinement to incorporate new sectors, such as non-NHS provision, or more detailed data in the case of Pharmacy Services.

Figure 7.9. Public service healthcare productivity index and growth rate, UK, 1995- 2014



Source: ONS (2017), *Public service productivity estimates: healthcare, 2014*, <https://www.ons.gov.uk/releases/publicserviceproductivityestimateshealthcare2014>

7.5. A proposed way forward in measuring health sector productivity

This chapter sets out the development and limitations of efficiency measurement at three levels of analysis: sector, sub-sector and disease-based. At each level, the availability and the coherence of input measures (both in financial and physical terms) and output or outcome measures is a key factor. For the use of financial inputs, the development of accurate spending estimates at the aggregate (health system) sub-sector and disease-based level via a framework such as the NHA is a prerequisite for any meaningful link to outputs/outcomes and analysis of productivity trends.

An extension of the current productivity indicators along the lines of a simplified methodology used in the UK is seen as a feasible approach, which can be further developed over time as information becomes more detailed and robust. The three main sectors – hospital, primary care and pharmaceuticals account for more than 80% of health care spending in Kazakhstan according to the 2014 NHA estimates – and Kazakhstan can start to exploit some of the data developments, particularly in the hospital sector.

In particular, Kazakhstan can profit from the recently introduced Diagnostic Related Groups-based payment system. While DRGs only cover a share of total hospital financing in Kazakhstan, activity and cost data are increasingly available by age and rural/urban breakdowns, split into Inpatient, Outpatient, Tertiary, Rehabilitation and Day-care (and separately by Polyclinic and Hospital). In addition to patient age and sex, DRGs use clinical attributes such as: (1) main diagnosis; (2) severity; (3) procedures performed; (4) co-morbidity; and (5) status at discharge.

Challenges remain, in that the main purpose of DRG introduction in Kazakhstan was for payment and budget allocation rather than to measure hospital activity or output. There is also

a need to improve the cost accounting system and the measurement of clinical activities-related consumption of resources. Further, the coding of procedures needs to be extended to include secondary diagnoses, co-morbidities and complications (Chanturidze et al., 2016).

Regarding the primary care sector, a breakdown into the various activities, such as numbers of GP visits, home visits, dental visits, etc. with the corresponding unit costs should be available. Similarly, pharmaceutical costs broken down into volume and price per item should be available from the Committee on Medical and Pharmaceutical Activity Control and the Health Services Purchasing Committee.

As detailed in the previous section, an integral part of the measurement of productivity is the adjustment of sector output to take account of quality changes reflecting various measures of patient outcomes and experience. In addition to standard outcome measures on healthy gains, survival rates and waiting times (to mirror the dimensions used in the UK), which would appear to be readily available and, subject to further examination in some cases, internationally comparable, Kazakhstan also has some broad data available on aspects of patient experience and satisfaction. Patient satisfaction can be measured in numerous ways. Patient reported indicators relate to patient-reported experience measures (PREMs, e.g. whether a patient feels they were adequately involved in important decisions about their care), and patient-reported outcome measures (PROMS, e.g. whether a patient is free of pain after an operation). Currently, it is not clear that Kazakhstan collects data in a systematic way to build these indicators, but this should be an area of further development.

In summary, by leveraging on some of the data developments, particularly activity and unit cost data in the hospital sector, with further investment in measuring patient-related outcomes, Kazakhstan can make notable progress in the construction of health sector productivity estimates.

Notes

1. When analysing changes of productivity over time this can be due to technological progress or changes in the efficient use of resources (Hollingsworth 2008).
2. <http://www.oecd.org/els/health-systems/hospital-purchasing-power-parities.htm>
3. This includes (i) general out-patient curative care, (ii) other outpatient curative care not related with dental or specialised care, (iii) ancillary services, such as imaging services and patient transportation, and (iv) services of prevention if provided in outpatient facilities.
4. Asthma and chronic obstructive pulmonary disease (COPD) are both illnesses which limit people's ability to breathe. Although asthma presents intermittent symptoms which are reversible with treatment, COPD is a progressive disease that mostly affects smokers.
5. The PHAMEU project was carried out in 31 European countries in 2009/2010 to compare and analyse the key dimensions of primary care in a standardized way.
6. The selection of these technologies is based mainly on the criteria of policy relevance and data availability in a large number of countries.
7. United National Healthcare System – although not a legal concept it refers to the Single Payer system and covers the following (CPMS, DRGs, CPMS-paid facilities, ambulatory, rural and oncological care, etc).
8. RCHD is currently reviewing and revising the set of productivity indicators for future reports.
9. The methodology was developed together with the Centre for Health Economics, University of York.
10. ONS currently use health expenditure information derived from the UK National Accounts. The UK Health Accounts (based on SHA 2011) have only recently been developed but could provide more appropriate sub-sector expenditure data to the current productivity methodology.

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Chapter 8

Conclusions

Kazakhstan has experienced an intermittent history regarding health accounts production over the last ten years or so. A more sustainable process has been put in place in recent years with the transition to the System of Health Accounts 2011 methodology and the responsibility for production firmly under the Republican Center for Healthcare Development, the technical body of the Ministry of Health.

This study has assessed the various strengths and weaknesses of the whole cycle of production from overall governance, to compilation and policy use of the information produced. This chapter summarises the main conclusions and recommendations to further improve the data sources and methodologies and better align to standard definitions and concepts. This will in turn provide more robust estimates of health financing and expenditure for both national purposes and international benchmarking.

Experience from many OECD and non-OECD countries has shown that the sustained production and use of a standard and robust health accounting framework, such as the System of Health Accounts 2011, can provide timely and accurate information on health care expenditure and financing for health policy and international benchmarking. To achieve this requires strong governance, sufficient capacity in terms of expertise and sustainable financing.

The Republic of Kazakhstan has experienced a stop-start history regarding health accounts production with a first project in 2004-05. More regular production has been in place since 2011, bolstered by the transition to the System of Health Accounts 2011 methodology and the central role of the Republican Centre for Healthcare Development, the technical body responsible for the production.

This OECD study has sought to assess the strengths and weaknesses of the production process, in terms of the overall governance, compilation and use of the health accounts in Kazakhstan. In addition, recommendations have been provided as to what improvements are needed to improve the data sources and methodologies in order to align as closely as possible to the international definitions and concepts.

While steps have been taken to improve the sustainability of the production process and ensure sufficient capacity by tackling the issue of turnover of personnel and knowledge transfer, there is room to further prioritise and cement the activity within the ministry and in government using legal instruments. In terms of governance and cooperation, the involvement of a broader-based steering committee would be advantageous to improve the buy-in and acceptability of the results, which in turn would increase the profile and use in government circles and beyond. Similarly, the greater involvement of health departments and agencies at the oblast/city level would ensure greater visibility of the work.

In terms of the actual compilation of the accounts, the report points to some immediate adjustments that can easily be introduced to bring the estimates in line with current international definitions and boundaries, ensuring better harmonisation with health spending estimates of OECD and other comparator countries. This includes items such as capital spending and other expenditure items either currently excluded or included in the current health spending aggregate. Further adjustments are made within the classifications of functions, providers and financing. The resulting estimates, presented in Chapter 6, are shown in comparison to OECD countries.

On developing and refining the health accounts, a number of detailed recommendations are provided across the board of health accounts classifications on potential supplementary data sources and methodologies – based on best practices from OECD countries. In particular, some of the current estimates are based on a single perspective, either from the provider or financing side, and would benefit from a "triangulation" with other data sources to validate or calibrate the original estimates. This is particularly in the case of households' out of pocket spending, which accounts for a third of overall health spending according to current estimates.

The development of productivity measures for the health sector in Kazakhstan would also benefit from the robust and detailed data from the NHA giving expenditure estimates at the sector level. Expanding the methodology beyond the current simple measures, perhaps along the lines of that used in the United Kingdom, could be seen as a feasible approach and is worth investigating.

Regarding future work and expansion of the health accounts framework, the development of expenditure by disease, age and gender can provide information about the current resource

allocations to beneficiary groups. This can also feed in to activities around the projection of health spending in respect of future population needs.

Finally, health accounts in Kazakhstan have benefitted and would continue to benefit from a knowledge exchange with health accounting experts in other countries, both those more advanced and experienced in the process as well as those at a similar level of development. In that regard, enhanced cooperation in regional and international fora would be highly beneficial.

Annex 1
Classifications currently used in nha of rk

Table 1A.1. Classification of health care functions (HC)

HC	Description	Included in current health expenditure
HC.1	Curative care	
HC.1.1	Inpatient curative care	
HC.1.1.1	Specialised inpatient care	
HC.1.1.2	Highly specialised inpatient care (tertiary care)	
HC.1.2	Day curative care	
HC.1.3	Outpatient curative care	
HC.1.3.1	General outpatient curative care	
HC.1.3.2	Dental outpatient curative care	
HC.1.3.3	Specialised outpatient curative care	
HC.2	Rehabilitative care	
HC.2.1	Inpatient rehabilitative care	
HC.2.5	Rehabilitation treatment and medical rehabilitation in the sanatorium organisations	Yes
HC.3	Long-term care	
HC.4	Ancillary services	
HC.4.2	Imaging services	
HC.4.3	Patient transportation	
HC.4.4	Pathological services	No
HC.4.5	Provision of blood, its components and products	?
HC.4.9	All other support services	
HC.5	Medical goods	
HC.5.1	Pharmaceuticals and other medical non-durable goods	
HC.5.2	Therapeutic appliances and other medical goods	
HC.5.2.4	All other additional medical durables including medical technical devices that are not specified by function	Yes
HC.5.2.9	All other medical durables, including medical technical devices	
HC.6	Preventive care	
HC.6.1	Information, education and counseling programmes	
HC.6.2	Immunisation programmes	
HC.6.3	Early disease detection programmes	
HC.6.5	Epidemiological surveillance and risk and disease control programmes	

Table 1A.1. Classification of health care functions (HC) (cont.)

HC	Description	Included in current health expenditure
HC.7	Governance, and health system and financing administration	
HC.7.1	Governance and health system administration	
HC.7.1.1	Maintenance activities of the authorised body in the field of healthcare	Yes
HC.7.1.1.2	Expenditure on the local general government health	Yes
HC.7.1.1.3	Implementation of institutional projects	Yes
HC.7.2	Administration of health financing	
HC.RI.3	Preventive services and public health services	Yes
HC.RI.3.1	Maternal and child health; family planning and family consultations	Yes
HC.RI.3.9	All other miscellaneous health services	Yes
HC.RI.4	Education and training of medical staff	No
HC.RI.4.1	The training of specialists with secondary vocational education	No
HC.RI.4.4	The training of specialists with higher postgraduate education	No
HC.RI.4.5	Training in technical and professional organisations , post-secondary education and social support to students	No
HC.RI.4.6	Social support technical and vocational , post-secondary education program students	No
HC.RI.5	Capital formation for the institutions providing medical services	No
HC.RI.6	Applied research in the field of health	?
HC.RI.7	Providing health and disease	?
HC.RI.9	Costs HCR, unspecified types	
HC.RI.9.1	Forensic-medical examination	No
HC.RI.9.3	Creation and support of health information systems	?
HC.RI.9.5	Consultancies analytical and case studies	Yes
HC.RI.10	Saving special medical allowance and emergency response	?
HC.RI.11	Other types of costs	?
HC.RI.12	Informal costs	Yes

Note: Shaded rows are not included in SHA 2011 HC classification.

Source: Republican Centre for Healthcare Development, Kazakhstan.

Table 1A.2. Classification of health care providers (HP)

HP	Description	Included in current health expenditure
HP.1	Hospitals	
HP.1.1	General hospitals	
HP.1.1.1	Hospitals	Yes
HP.1.1.2	Medical organisation of national companies and holding companies (quasi-governmental organisations)	Yes
HP.1.1.3	Hospital rehabilitation treatment and rehabilitation centres	Yes
HP.1.2	Mental health hospitals	
HP.1.2.1	Psychiatric hospital/dispensary	Yes
HP.1.2.3	Drug hospital / dispensary / rehabilitation centres	Yes
HP.1.3	Specialised hospitals (other than mental health hospitals)	
HP.1.3.1	Hospital for infectious diseases	
HP.1.3.2	Ophthalmology hospital	
HP.1.3.3	Tuberculosis hospital	
HP.1.3.4	TB hospitals and clinics	
HP.1.3.5	Leprosarium	
HP.1.3.6	Cardiology dispensary	
HP.1.3.7	Dermatological and venereal dispensaries	
HP.1.3.8	Cancer dispensary / hospital	
HP.1.3.9	Endocrinology dispensary	
HP.1.3.10	Maternity clinics / perinatal centres	
HP.1.3.11	Antituberculosis sanatorium	
HP.1.3.12	Clinical research centres, scientific research institutes (3 providers - National Institutes for Oncology, Tuberculosis and AIDS)	
HP.2	Residential long-term care facilities	
HP.2.1	Long-term nursing care facilities	
HP.2.1.1	Hospital nursing / hospice	Yes
HP.2.9	Other residential long-term care facilities	
HP.2.9.1	Child care centre	No
HP.3	Providers of ambulatory health care	
HP.3.1	Medical practice	
HP.3.1.1	Offices of general medical practitioners	
HP.3.2	Dental practice	
HP.3.3	Other health care practitioners	
HP.3.4	Ambulatory health care centres	
HP.3.4.1	Family planning centres	
HP.3.4.4	Dialysis care centres	
HP.3.4.5	All other outpatient multi-disciplinary centres to provide specialised outpatient care	Yes
HP.3.4.5.1	Advisory diagnostic centre / clinic	Yes
HP.3.4.9	All other ambulatory centres	
HP.3.4.9.1	Women's advisory	Yes

Table 1A.2. Classification of health care providers (HP) (cont.)

HP	Description	Included in current health expenditure
HP.4	Providers of ancillary services	
HP.4.1	Providers of patient transportation and emergency rescue	
HP.4.9	Other providers of ancillary services	
HP.5	Retailers and other providers of medical goods	
HP.5.1	Pharmacies	
HP.5.2	Retail sellers and other suppliers of durable medical goods and medical appliances	
HP.5.3	Organisations implementing other products and other suppliers of pharmaceuticals and medical goods	Yes
HP.6	Providers of preventive care	
HP.7	Providers of health care system administration and financing	
HP.7.1	Government health administration agencies	
HP.7.1.2	Local authorities of State healthcare management	Yes
HP.7.3	Private health insurance administration agencies	
HP.8	Rest of economy	
HP.8.2	All other industries as secondary providers of health care	
HP.8.2.1	Educational establishments	No
HP.8.9	Other industries n.e.c.	
HP.9	Rest of the world	
HP.11	Organisations of services which is not defined	?
HP.13	The base of special medical supplies	?

Note: Shaded rows are not included in SHA 2011 HP classification.

Source: Republican Centre for Healthcare Development, Kazakhstan.

Table 1A.3. Classification of health care financing schemes (HF)

HF	Description
HF.1	Government schemes and compulsory contributory health care financing schemes
HF.1.1	Government schemes
HF.1.1.1	Central government schemes
HF.1.1.1.1	The Ministry of Health and Social Development of the Republic of Kazakhstan
HF.1.1.1.2	The Ministry of Internal Affairs of the Republic of Kazakhstan
HF.1.1.1.3	The Ministry of Education and Science of the Republic of Kazakhstan
HF.1.1.1.4	The Ministry of Defence of the Republic of Kazakhstan
HF.1.1.1.6	Administrative Department of the President of the Republic of Kazakhstan
HF.1.1.1.16	Ministry of Culture and Sports of the Republic of Kazakhstan
HF.1.1.1.17	Ministry of National Economy of the Republic of Kazakhstan
HF.1.1.2	State/regional/local government schemes
HF.1.1.2.1	Local health governance
HF.1.1.2.6	Local government building
HF.1.1.2.7	Local management of construction , passenger transport and highways
HF.1.1.2.8	construction management, architecture and urban planning area
HF.1.1.2.9	Local control Insurance State
HF.2	Voluntary health care payment schemes
HF.2.1	Voluntary health insurance schemes
HF.2.3	Enterprise financing schemes
HF.2.3.1	Enterprises (except health care providers) financing schemes
HF.3	Household out-of-pocket payment
HF.4	Rest of the world financing schemes (non-resident)
HF.4.2	Voluntary schemes (non-resident)
HF.4.2.1	Voluntary health insurance schemes (non-resident)
HF.4.2.2.3	Schemes of enclaves (e.g. international organisations or embassies)

Note: Shaded rows are not included in SHA 2011 HF classification

Source: Republican Centre for Healthcare Development, Kazakhstan.

Table 1A.4. Classification of revenues of health care financing schemes (FS)

FS	Description
FS.1	Transfers from government domestic revenue (allocated to health purposes)
FS.1.1	Internal transfers and grants
FS.1.1.1	Republican budget
FS.1.1.2	Local budget
FS.5	Voluntary prepayment
FS.5.1	Voluntary prepayment from individuals/households
FS.6.	Other domestic revenues n.e.c.
FS.6.1	Other revenues from households n.e.c.
FS.6.2	Other revenues from corporations n.e.c.
FS.7	Direct foreign transfers
FS.7.1	Direct foreign financial transfers
FS.7.3	Other direct foreign transfers (n.e.c.)
FSR.1	Loans
FSR.1.1.1	Loans taken by government

Note: Shaded rows are not included in SHA 2011 FS classification

Source: Republican Centre for Healthcare Development, Kazakhstan.

Table 1A.5. Classification of factors of health care provision (FP)

FP	Description
FP.1	Compensation of employees
FP.1.1	Wages and salaries
FP.1.2	Social contributions
FP.1.3	All other costs related to employees
FP.3	Materials and services used
FP.3.2	Health care goods
FP.3.3	Non-health care services
FP.3.4	Non-health care goods
FP.4	Consumption of fixed capital
FP.5	Other items of spending on inputs
FP.5.1	Taxes
FP.5.2	Other items of spending

Source: Republican Centre for Healthcare Development, Kazakhstan.

Annex 2

OECD adjusted NHA of RK tables

Table 2A.1. Adjusted HCxHF table, 2014

SHA 2011	Health care financing schemes (ICHA-HF)	Million KZT										All HF
		HF.1	HF.1.1	HF.2	HF.2.1	HF.2.3	HF.3	HF.4	HF.4.2	All financing schemes		
HC.1	Curative care	587,764	587,764	43,746	15,826	27,920	196,375	1,992	1,992	1,992	829,877	
HC.1.1	Inpatient curative care	334,763	334,763	10,348		10,348	55,715	1,992	1,992	1,992	402,839	
HC.1.2	Day curative care	21,552	21,552								21,552	
HC.1.3	Outpatient curative care	231,428	231,428	33,398	15,826	17,572	140,660				405,486	
HC.1.3.1	General outpatient care	203,391	203,391	15,093	11,078	4,016	14,956				233,441	
HC.1.3.2	Dental outpatient care			1,942	1,425	517	96,485				98,428	
HC.1.3.3	Specialised outpatient care	28,037	28,037	4,527	3,323	1,204	32,564				32,564	
HC.1.3.9	All other outpatient care			11,835		11,835	29,218				41,053	
HC.2	Rehabilitative care	479	479	3,754		3,754	4,233				4,233	
HC.2.1	Inpatient rehabilitative care	260	260	3,754		3,754					4,233	
HC.3	Long-term care (health)	260	260								260	
HC.4	Ancillary services	28,585	28,585				7,035				35,620	
HC.4.2	Imaging services	1,399	1,399								1,399	
HC.4.3	Patient transportation	27,186	27,186				7,035				34,221	
HC.5	Medical goods	50,727	50,727				281,177				331,904	
HC.5.1	Pharmaceuticals and other medical non-durable goods	49,575	49,575				257,498				307,073	
HC.5.2	Therapeutic appliances and other medical durable goods	1,152	1,152				23,679				24,830	
HC.6	Preventive care	43,578	43,578								43,578	
HC.6.1	Information, education and counselling programmes	6,817	6,817								6,817	
HC.6.2	Immunisation programmes	16,616	16,616								16,616	
HC.6.3	Early disease detection programmes	4,833	4,833								4,833	
HC.6.4	Healthy condition monitoring programmes	3,251	3,251								3,251	
HC.6.5	Epidemiological surveillance and risk and disease control programmes	12,061	12,061								12,061	
HC.7	Governance and health system and financing administration	6,152	6,152	3,841	3,841						9,993	
HC.7.1	Governance and health system administration	6,152	6,152								6,152	
HC.7.2	Administration of health financing			3,841	3,841						3,841	
HC.0	Other health care services unknown	20,547	20,547								21,816	
All HC	All functions	738,092	738,092	51,341	19,666	31,674	484,587	3,261	3,261	3,261	1,277,281	

Source: Republican Centre for Healthcare Development, Kazakhstan (adjusted).

Table 2A.2. Adjusted HCxHP table, 2014

SHA 2011	Health care providers (CHA-HP)	Hospitals	HP.1.1	HP.1.2	HP.1.3	HP.2	HP.2.1	HP.2.9	HP.3	HP.3.1	HP.3.2	HP.3.3	HP.3.4	HP.4	HP.4.1	HP.5	HP.5.1	HP.5.2	HP.5.9	HP.6	HP.7	HP.7.1	HP.7.3	HP.8	HP.8.2	HP.9	All HP
Health care functions (CHA-HF)	Million KZT	General hospitals	Mental health hospitals	Specialised hospitals (other than mental health hospitals)	Residential long-term care facilities	Long-term nursing care facilities	Other residential long-term care facilities	Providers of ambulatory health care	Medical practices	Dental practices	Other health care practitioners	Ambulatory health care centres	Providers of ancillary services	Providers of patient transportation and emergency rescue	Retailers and other providers of medical goods	Pharmacies	Retail sellers and other suppliers of durable medical goods and medical appliances	All other miscellaneous sellers and other suppliers of pharmaceuticals and medical goods	Providers of preventive care	Government health administration agencies	Private health insurance administration agencies	Rest of economy	All other industries as secondary providers of health care	Rest of the world	Providers unknown	All providers	
HC.1 Curative care	468,444	239,782	20,056	148,607				416,357	241,121	99,428	73,618	3,190											4,040	4,040	1,036	859,877	
HC.1.1 Inpatient curative care	396,465	239,069	20,056	148,341				416,357	241,121	99,428	73,618	2,432											3,976	3,976	1,036	459,839	
HC.1.2 Outpatient curative care	112,793	3,713		2,266				416,357	241,121	99,428	73,618	2,432											62	62		468,886	
HC.1.3 Outpatient curative care								233,441	233,441	98,428	73,618															233,441	
HC.1.3.1 General outpatient care								98,428																		98,428	
HC.1.3.2 Dental outpatient care								32,964																		32,964	
HC.1.3.3 Specialised outpatient care								41,065																		41,065	
HC.2 Rehabilitation care	4,233	4,233						4,106																		4,233	
HC.2.1 Inpatient rehabilitative care	4,233	4,233						4,106																		4,233	
HC.3 Long-term care (health)						260	260																			260	
HC.4 Ancillary services	1,340	144	1,195					59	1			58	34,221	34,221												59,620	
HC.4.2 Imaging services	1,340	144	1,195					59	1			58	34,221	34,221												59,620	
HC.4.3 Patient transportation																										1,389	
HC.5 Medical	1,124	790	334					28	16			10			330,752	307,073	17,947									331,024	
HC.5.1 Pharmaceuticals and other medical non-durable goods															307,073	307,073										307,073	
HC.5.2 Therapeutic appliances and other medical durable goods	1,124	790	334					28	16			13			23,679	17,947										24,808	
HC.6 Preventive care					3,251		3,251																			43,578	
HC.6.1 Education and counseling programmes																										6,817	
HC.6.2 Immunisation programmes																										16,616	
HC.6.3 Early disease detection programmes																										4,833	
HC.6.4 Healthy condition monitoring programmes																										3,251	
HC.6.5 Epidemiological surveillance and risk and disease prevention programmes																										12,061	
HC.7 Governance and health system and financing administration																										3,631	
HC.7.1 Governance and health system administration																										3,631	
HC.7.2 Administration of health financing																										3,631	
HC.8 Other health care services unknown	415,141	244,949	20,056	150,137	3,511	260	3,251	416,444	241,137	98,428	73,618	3,261	34,221	34,221	330,752	307,073	17,947						4,040	4,040	1,036	21,816	
All HC																											26,427
																											1,277,281

Source: Republican Centre for Healthcare Development, Kazakhstan (adjusted).

Table 2A.3. Adjusted HPxHF table, 2014

SHA 2011	Health care financing schemes (ICHA+HF)	Health care providers (ICHA+HF)										All HF
		HF.1	HF.1.1	HF.2	HF.2.1	HF.2.3	HF.3	HF.4	HF.4.2	All financing schemes		
		Million KZT										
HP.1	Hospitals	343,331	343,331	14,102	14,102	14,102	55,715	1,992	1,992	1,992	1,992	415,141
HP.1.1	General hospitals	173,140	173,140	14,102	14,102	14,102	55,715	1,992	1,992	1,992	1,992	244,949
HP.1.2	Mental health hospitals	20,055	20,055									20,055
HP.1.3	Specialised hospitals (other than mental health hospitals)	150,137	150,137									150,137
HP.2	Residential long-term care facilities	3,511	3,511									3,511
HP.2.1	Long-term nursing care facilities	260	260									260
HP.2.9	Other residential long-term care facilities	3,251	3,251									3,251
HP.3	Providers of ambulatory health care	242,386	242,386	33,398	33,398	15,826	15,826	17,572	140,660	416,444		416,444
HP.3.1	Medical practices	211,088	211,088	15,093	15,093	11,078	14,956	4,016	14,956	241,137		241,137
HP.3.2	Dental practices	1,942	1,942	1,942	1,942	1,425	517	96,485	96,485	98,428		98,428
HP.3.3	Other health care practitioners	28,037	28,037	16,362	16,362	3,323	29,218	13,039	29,218	73,618		73,618
HP.3.4	Ambulatory health care centres	3,261	3,261							3,261		3,261
HP.4	Providers of ancillary services	27,186	27,186						7,035	34,221		34,221
HP.4.1	Providers of patient transportation and emergency rescue	27,186	27,186						7,035	34,221		34,221
HP.5	Retailers and other providers of medical goods	49,575	49,575	49,575	49,575	281,177	281,177		330,752	330,752		330,752
HP.5.1	Pharmacies	49,575	49,575				257,488		307,073	307,073		307,073
HP.5.2	Retail sellers and other suppliers of durable medical goods and medical appliances						17,947		17,947	17,947		17,947
HP.5.9	All other miscellaneous sellers and other suppliers of pharmaceuticals and medical goods						5,731		5,731	5,731		5,731
HP.6	Providers of preventive care	40,327	40,327							40,327		40,327
HP.7	Providers of health care system administration and financing	2,521	2,521	3,841	3,841	3,841						6,362
HP.7.1	Government health administration agencies	2,521	2,521									2,521
HP.7.3	Private health insurance administration agencies			3,841	3,841	3,841						3,841
HP.8	Rest of economy	4,040	4,040									4,040
HP.8.2	All other industries as secondary providers of health care	4,040	4,040									4,040
HP.9	Rest of the world	1,036	1,036									1,036
HP.9.0	Providers unknown	24,178	24,178								1,269	25,447
All HP	All providers	738,092	738,092	51,341	51,341	19,666	484,887	31,674	484,887	3,261	1,269	1,277,281

Source: Republican Centre for Healthcare Development, Kazakhstan (adjusted).

Table 2A.4. Adjusted HFxFS table, 2014

SHA 2011	Health care financing schemes (ICHA-HF)	Revenues of health care financing schemes (ICHA-FS)		FS.1	FS.1.1	FS.5	FS.6	FS.7	All FS
		Transfers from government domestic revenue	Internal transfers and grants							Voluntary prepayment	Other domestic revenues n.e.c.	Direct foreign transfers	All revenues of financing schemes
		Million KZT							
HF.1	Government schemes and compulsory contributory health care financing schemes	738,092	738,092	738,092					738,092
HF.1.1	Government schemes	738,092	738,092						738,092
HF.2	Voluntary health care payment schemes					19,666	31,674		51,341
HF.2.1	Voluntary health insurance schemes					19,666			19,666
HF.2.3	Enterprise financing schemes						31,674		31,674
HF.3	Household out-of-pocket payment						484,587		484,587
HF.4	Rest of the world financing schemes (non-resident)							3,261	3,261
HF.4.2	Voluntary schemes (non-resident)							3,261	3,261
All HF	All financing schemes	738,092	738,092	738,092		19,666	516,261	3,261	1,277,281

Source: Republican Centre for Healthcare Development, Kazakhstan (adjusted).

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